

The Relationship Between Postsecondary Foreign Language Teachers' Beliefs in
Student-Centeredness and Their Educational Technology Practices

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By

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Student-Centered Approaches and Their Educational Technology Practices

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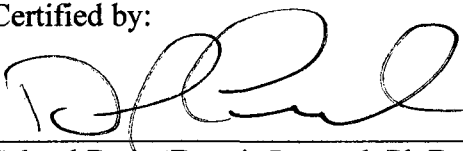

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ABSTRACT

Though there is evidence that postsecondary foreign language (FL) teachers have not maximized computer technology for language teaching and learning, there is a lack of studies that attempt to uncover reasons for this underutilization. Research in other disciplines within general education suggested that teachers' beliefs in student-centeredness affect their educational technology practices. This quantitative, correlational dissertation filled a gap in the available literature by focusing on examining the direction and strength of correlation between beliefs in student-centeredness and the educational technology practices among postsecondary FL teachers. Through the use of a self-report, online survey, teachers' educational technology practices were measured in terms of the frequency with which they (a) use particular types of software in class, (b) direct students to use particular types of software for learning in class, and (c) employ various means of integrating computers in class. Teacher's beliefs in student-centeredness, the predictor variable, were measured in terms of the degree of belief in the centrality of the learner. The sample consisted of 248 postsecondary teachers of 17 different languages at the Defense Language Institute Foreign Language Center in Monterey, California. Data analyses revealed that there is no relationship between beliefs in student-centeredness and teacher software use, student software use, or technology integration practices among postsecondary FL teachers. This suggests that future researchers should consider focusing on exploring other factors that affect technology integration. Instead of depending only on self-report surveys, researchers that choose to focus on the role of beliefs in technology integration are encouraged to utilize alternative methods to measure beliefs such as interviews or classroom observations.

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TABLE OF CONTENTS

LIST OF TABLES	vii
CHAPTER 1: INTRODUCTION	1
Background	2
Problem Statement	3
Purpose	4
Theoretical Framework	5
Research Questions	7
Hypotheses	8
Nature of the Study	9
Significance of the Study	10
Definitions	16
Summary	17
CHAPTER 2: LITERATURE REVIEW	18
Technology and Language Learning and Teaching	20
Educational Technology Practices	27
Teacher- and Student-centered Approaches	30
Teachers' Beliefs and Approaches to the Use of Educational Technology	38
Summary	46
CHAPTER 3: RESEARCH METHOD	51
Hypotheses	52
Research Methods and Design	53
Participants	54
Materials/Instruments	56
Operational Definition of Variables	59
Data Collection, Processing, and Analysis	61
Methodological Assumptions, Limitations, and Delimitations	62
Ethical Assurances	65
Summary	66
CHAPTER 4: FINDINGS	67
Results	72
Evaluation of Findings	74
Summary	78
CHAPTER 5: IMPLICATIONS, RECOMMENDATIONS, AND CONCLUSIONS	80
Implications	81
Recommendations	85
Conclusion	86
REFERENCES	87
APPENDIXES	98
Appendix A: Human Subject Consent Form for Behavioral Study	99
Appendix B: Educational Technology Practices	100
Appendix C: Permissions to Use Surveys	105

LIST OF TABLES

Table 1 <i>Sample Characteristics</i>	70
Table 2 <i>Languages Taught by Respondents</i>	71

CHAPTER 1: INTRODUCTION

Among the various technologies that foreign language (FL) educators have used for learning and instruction, computers seem to hold the most potential to enhance teaching and learning (Maddux, Johnson, & Willis, 2001). Computers allowed the creation of classrooms that have a technology set up, otherwise known as smart classes (Vartabedian, 2002), that afford both teachers and students daily access to technology without having to worry about the scheduled availability of language or computer laboratories (Vartabedian). Researchers that explored this daily presence of technology surmised that integrating computer technology into instruction enhances student learning (Schrand, 2008; Kim & Rissel, 2008). Researchers that investigated how postsecondary FL teachers use technology suggested that teachers have underutilized computer technology (Arnold, 2007; Cummings, 2008; Erben & Sarieva, 2008). Yet, there is a lack of studies that aimed to investigate the reasons for the underuse of technology among postsecondary FL teachers.

As documented by research in other general education disciplines, researchers resorted to examining the relationship between teachers' pedagogical beliefs and their educational technology practices (Palak & Wells, 2009). Researchers have focused on this relationship because of the conviction that teachers' educational beliefs in the centrality of the learner affect their use of educational technology (Ertmer, 2005; Fullan, 2003; Judson, 2006; Palak & Wells). However, while some studies suggested that teachers' pedagogical beliefs affect their educational technology practices (Levin & Wadmany, 2006; Matzen & Edmunds, 2007; Palak & Walls; Park & Ertmer, 2007), other

studies indicated the absence of such a relationship (Judson, 2006; Wang, 2002; Windschitl & Sahl, 2002).

The present dissertation was an attempt at examining the nature of the relationship between the beliefs of postsecondary FL teachers in student-centeredness and their educational technology practices. The sample for the study consisted of 248 teachers working at the Defense Language Institute Foreign Language Center (DLIFLC) in Monterey, California because they teach 17 foreign languages, work in a technology-rich environment, and have received in-house and online training and support to integrate computer technology into their every day teaching.

This chapter begins with the background for the study and contains a discussion of the research problem and the purpose of conducting such a study. Subsequently, the following sections present the theoretical framework of the study as well as the research questions and the corresponding hypotheses. A brief discussion of the nature of the study and its significance precedes the definitions of the key terms used in the study and the concluding summary.

Background

Research studies have documented the potential of computer technology in foreign language education (Hoopingarner, 2009; Kessler, 2009; Kim & Rissel, 2008). Thus, there is evidence that postsecondary FL teachers have not maximized technology to support student-centered learning (Arnold, 2007). Various human, material, logistical, and financial issues affect teachers' use of computer technology and technology integration (Bariso, 2003; Ertmer, 2005; Pajo & Wallace, 2001; Snoeyink & Ertmer, 2002). Across these categories of obstructions, the five most vital issues are ease of

access to computers (Barron, Kemker, Harmes, & Kalaydjian, 2003; Norris, Sullivan, Poirot, & Soloway, 2003), teachers' beliefs (Ertmer, 2005), teachers' demographic characteristics (Bebell, Russell, & O'Dwyer, 2004), teachers' knowledge of technology and educational material (Pierson, 2001), and procedural, organizational, and peer assistance (Sandholtz & Reilly, 2004). Nevertheless, it seems that even when educational institutions remove these barriers or minimize their influence, there remains an underutilization of computer technology to support student learning (Arnold, 2007; Barron et al., 2003). The availability and accessibility of computer technologies in the classroom do not guarantee that teachers are using more student-centered practices (Cuban, 2001; Cummings, 2008; Erben & Sarieva, 2008). Because beliefs guide the decisions of teachers when knowledge structures and cognitive structure do not serve them well in unfamiliar situations (Pedersen & Liu, 2003), studies have focused on studying the relationship between teachers' beliefs and their use of computer technology.

Problem Statement

Despite the potential of technology in FL learning (Hoopingarner, 2009; Kessler, 2009; Kim & Rissel, 2008), there is evidence that postsecondary FL teachers have not maximized the available technology (Arnold, 2007). There is a lack of studies that attempt to uncover reasons for this underutilization among in-service teachers. Previous studies in this area examined the use of computer technology with a small group of pre-service teachers during or after a formal computer assisted language learning (CALL) teacher education program, or within a small number of FL teachers in K-12 settings (Egbert, 2005; Lam, 2000; Stracke, 2004; Wong & Benson, 2006). Furthermore, explanations for this lack of computer technology use have relied on research from other

disciplines within general education. Research from general education suggests that the nature of the relationship between teachers' beliefs in student-centeredness and their educational technology practices remains unclear. While some researchers indicate that beliefs in student-centeredness strongly affect teachers educational technology practices (Albion & Ertmer, 2002; Bai & Ertmer, 2008; Ertmer, 2005), other researchers suggest that there is no relationship between teachers' beliefs in student-centeredness and their educational technology practices (Judson, 2006; Wang, 2002; Windschitl & Sahl, 2002). This dissertation addresses the general problem of the dearth of studies that attempt to investigate reasons behind underutilization of technology among postsecondary FL teachers. The specific problem addressed in this study is how beliefs in student-centeredness relate to teachers educational technology among postsecondary FL teachers, such as those at DLIFLC.

Purpose

One purpose of this descriptive, correlational study was to fill a gap in the available literature regarding the factors that affect the educational technology practices among in-service postsecondary FL teachers. A second purpose for this study was to ascertain how teachers' beliefs in student-centeredness and their educational technology practices correlate. The specific population of the study consisted of 1,200 FL teachers at the basic language programs in DLIFLC at the Presidio of Monterey, California. The sample consisted of 248 participants who voluntarily completed an online survey (Appendix B) that combined sections from the Perceptions of Computers and Technology (Hogarty, Lang, & Kromrey, 2003) (PCT) and Mathews' (2008) questionnaire about teachers' beliefs' in student centeredness (BSC). There was one predictor variable and

three outcome variables. The predictor variable, Beliefs in Student-Centeredness, is operationally defined in terms of the degree with which teachers believe in the centrality of the student. The first outcome variable, Teacher Software Use, is operationally defined as the frequency with which teachers use particular types of software in class. The second outcome variable, Student Software Use, is operationally defined in terms of the frequency with which teachers direct students to use particular types of software for learning in class. Finally, the third outcome variable, Technology Integration Practices, is operationally defined as the frequency with which teachers employ various means of integrating computers in class.

Theoretical Framework

The theoretical framework for this study is grounded primarily in Zhao and Cziko's (2001) Perceptual Control Theory perspective. The theoretical framework was also informed by studies conducted by Ertmer (1999, 2005). Both frameworks operate upon the conviction that effective use of computer technology in learning and teaching could be promoted and inhibited by the teachers' pedagogical beliefs.

Zhao and Cziko highlighted the essential role that teacher beliefs play in technology integration. In order for teachers to use technology, they must believe that (a) technology can effectively help them achieve higher-level objectives, (b) technology use will not interfere with higher-level goals, and (c) they will possess adequate ability and have sufficient resources to use technology. Zhao and Cziko further explained that teachers might not adopt technology if the promoted use does not agree with their existing beliefs or practices.

Ertmer (1999) identified two sets of barriers to technology integration. The first set, first-order barriers, includes external obstacles such as access to technology, training, and support. The second set, second-order barriers, is deeply rooted in daily practice (Ertmer, 2005). These barriers are internal to the teacher and are embedded in a teacher's philosophy of teaching and learning. These barriers include lack of rationale for technology use, irrelevance to the curriculum, and incompatibility of technology with pedagogical beliefs. Within this framework, overcoming first-order barriers does not guarantee effective and innovative use of technology. However, overcoming the second-order barriers will more likely lead to effective use of the technologies. Paramount in this set is the teachers' pedagogical beliefs.

In the context of technology use in the classroom, teacher beliefs influence their use of computers in the classroom (Ertmer, 2005; Levin & Wadmany, 2006). Research suggests that teachers with beliefs in student-centeredness and constructivist teaching methods are more successful in integrating technology than those possessing traditional beliefs (Judson, 2006). Teachers' beliefs are compatible with their instruction behaviors and influence their expectations and practices as well as their students' achievement (Moseley & Utley, 2008; Scharlach, 2008). Theorists and researchers agree that beliefs serve as the strongest predictor of behavior because they comprise a collection of constructs that characterize and encapsulate the configuration and content of mental states that drive a person's actions (Bai & Ertmer, 2008). When attempting to explain how and why teachers use technology the way they do or why they use it less than other professionals do, researchers have resorted to examining teachers' beliefs and attitudes (Bai & Ertmer; Ertmer, 2005, Lambert, Gong, & Cuper, 2008; Park & Ertmer, 2007;

Shaunessy, 2007). According to Chen (2008), researchers have reported facing difficulties in describing teacher beliefs in indisputable terms because of the countless ways in which beliefs are defined. In order to indicate teacher beliefs, Chen suggested that researchers have used various terms such as attitudes, values, judgments, axioms, opinions, ideology, perceptions, conceptions, conceptual systems, preconceptions, dispositions, implicit theories, explicit theories, personal theories, and other concepts.

Teachers' beliefs are typically instinctive assumptions about education related issues such as teaching, learning, curriculum, schooling, and knowledge (Levin & Wadmany, 2006). Further, Park and Ertmer (2007) extrapolated that teacher beliefs are internal constructs that guide teaching practices and enable teachers to interpret experiences. Finally, according to research documented by Levin and Wadmany, beliefs act as filters or intuitive screens that direct teachers in making instructional and curricular decisions, implementing innovations, adopting new teaching methods, or adapting to new classroom environments, processes, and goals.

Research Questions

There are reasons to believe that a majority of FL teachers have not used computer technology in a student-centered manner (Cummings, 2008; Erben & Sarieva, 2008; Kim & Rissel, 2008). Some researchers have suggested that teachers' educational beliefs affect how teachers use computers in the classroom (Levin & Wadmany, 2006; Matzen & Edmunds, 2007; Park & Ertmer, 2007; Palak & Walls, 2009). In contrast to teachers possessing traditional teacher-centered beliefs, teachers with stronger beliefs in student-centeredness and constructivist teaching successfully integrate technology (Judson, 2006; Park & Ertmer, 2007; Wang, 2002; Windschitl & Sahl, 2002). In order to

test these claims and examine the relationship between the beliefs of postsecondary FL teachers in student-centeredness and their educational technology practices, three questions guided the study. The three research questions were:

- Q1.* What is the relationship between postsecondary FL teachers' degree of belief in student-centeredness and the frequency with which they use particular types of software in class?
- Q2.* What is the relationship between postsecondary FL teachers' degree of belief in student-centeredness and the frequency with which they direct students to use particular types of software for learning in class?
- Q3.* What is the relationship between postsecondary FL teachers' degree of belief in student-centeredness and the frequency with which they employ various means of integrating computers in class?

Hypotheses

H1₀: There is no significant positive correlation between postsecondary FL teachers' degree of belief in student-centeredness and the frequency with which they use particular types of software in class.

H1_a: There is significant positive correlation between postsecondary FL teachers' degree of belief in student-centeredness and the frequency with which they use particular types of software in class.

H2₀: There is no significant positive correlation between postsecondary FL teachers' degree of belief in student-centeredness and the frequency with which they direct students to use particular types of software for learning in class.

H2_a: There is significant positive correlation between postsecondary FL teachers' degree of belief in student-centeredness and the frequency with which they direct students to use particular types of software for learning in class.

H3₀: There is no significant positive correlation between postsecondary FL teachers' degree of belief in student-centeredness and the frequency with which they employ various means of integrating computers in class.

H3_a: There is significant positive correlation between postsecondary FL teachers' degree of belief in student-centeredness and the frequency with which they employ various means of integrating computers in class.

Nature of the Study

This was a correlational study designed to ascertain how beliefs in student-centeredness relate to educational technology practices among postsecondary FL teachers. A correlational design seemed the most appropriate for this study because it allows establishing the nature of the relationship between the variables without the need to manipulate or control those variables. Further, the use of a survey approach was preferred for this study because of its effectiveness in describing the beliefs of a large sample.

Using the institute's internal email system, 1,200 faculty members received an email containing the consent form as well as the link to an electronic survey. After the deactivation of the survey, 248 teachers throughout the institute had responded to the survey. In addition to a section soliciting demographics and background information, the instrument consisted of 50 items divided into four parts: Teacher software use (14 items), student software use (14 items), computer integration instructional strategies (12 items),

and teacher beliefs in student-centeredness (10 items). The first three sections measured the three outcome variables while the last section measured the predictor variable. The first three sections were adapted from the Perceptions of Computers and Technology (Hogarty, Lang, & Kromrey, 2003) while the last section was adapted from Mathews' (2008) questionnaire about teachers' beliefs in student- and teacher-centered approaches.

Significance of the Study

The present study focused on the use of computer technology in the classroom by FL educators within a postsecondary context in association with their beliefs in student-centeredness. As the present investigation differs from existing studies in terms of the subjects studied, analytical approaches, and the implications of the findings, it is significant for five reasons.

First, the sample of this study is from in-service FL teachers who teach 17 languages in a postsecondary context. Most previous research into FL teachers' technology integration focused on a small group of teachers during or after a formal computer assisted language learning (CALL) teacher education program, or on a small number of FL teachers in K-12 settings (Egbert, 2005; Lam, 2000; Stracke, 2004; Wong & Benson, 2006). Further, Zhao's (2005) review of 156 peer-reviewed articles suggested that researchers in FL education usually focus on French, Spanish, English, German, and Arabic languages. In a recent exhaustive bibliography, Kilickaya (2009) compiled 1732 bibliographic entries from books and journal articles in English that focus on the theory of technology in the field of language education and date back to 1980 with a special focus on the years between 2003 and March of 2009. The second section in the bibliography deals with attitudes and beliefs and contains 47 articles and book chapters

that appeared in print between 1994 and 2009. Notably, only 22 articles researched teachers' beliefs and integration of information and communications technology. A total of 10 articles focused on pre-service FL teachers and the remaining 12 focused on K-12 FL teachers. None of the studies listed in this bibliography focused on examining the relationship between the pedagogical beliefs and educational technology practices among post-secondary FL teachers.

Second, this study is significant from an analytical perspective. Previous research concerned with FL teachers' use of computer technology in the classroom regarded teachers' use of computer technology as a single, unitary construct (Bebell et al., 2004). In other words, the concern with FL teachers' use of computer technology in the classroom is in terms whether they use computer technology in the classroom or not. However, like other subject teachers' use of computer technology in the classroom (Bebell et al.), FL teachers' use of computer technology in the classroom is multi-faceted (Meskill & Anthony, 2007). The limitations of treating teachers' use of technology as unitary are evident, especially when FL teachers do so for different instructional purposes. Some, for example, may frequently use computer technology to deliver their instruction, while others may use it to facilitate students' group work. Thus, in order to reflect multi-faceted aspects of FL teachers' use of computer technology in the classroom, it is justifiable to consider measures of technology use depending upon a teacher's pedagogical purpose (Bebell et al.).

Third, the study is significant because it identifies the nature of the relationship between student-centered beliefs and well-integrated computer technology, using technology in different ways for student involved learning. Some studies suggested that

when integrating technology, there is no relationship between teachers' educational beliefs and instructional practices (Judson, 2006; Palak & Walls, 2009; Windschitl & Sahl, 2002). Other studies suggested that there is a relationship between how teachers use technology and their educational beliefs (Matzen & Edmunds, 2007).

Fourth, the results of the study could be used to guide and design training and workshops that help postsecondary FL teachers advance from the entry level of technology integration to the levels of adoption, adaptation, appropriation, and invention. According to Cuban (2001), teachers travel through the four levels of computer use. First, they progress from being beginning users of computers to the level of adoption when they apply traditional teaching approaches and are able to explain how computers are used. When teachers continue to employ traditional teaching approaches while also allowing students to use computers for classroom study or homework, they reach the next level, adaptation. When technology becomes an integral component of curricula and teaching, teachers reach the appropriation level. Finally, when teachers depart from traditional teaching approaches in favor of task- and project-based learning and allow students to utilize technology to tailor their learning, they are at the invention level.

Finally, in the last 20 years, educational investments have made substantial financial investments in educational technology (Bebell et al., 2004). For example, in 2005, colleges and universities spent an estimated \$2.4 billion on hardware, \$1.3 billion on software, and \$242 million on training (Kiernan, 2005). Similarly, higher education institutions have invested heavily in technological infrastructure (Sheehan, 2008). However, it does not seem that institutes have reaped much benefit from the considerable investments made in technology (Carnevale, 2004). Therefore, it is important to the

instructional leaders to understand how frequently and in what manner teachers use the available technology. Second, when initiating technology integration or designing training programs, it is equally important for administrators to understand how the pedagogical beliefs of teachers relate to their use of computer technology.

The present study focuses on the use of computer technology in the classroom by FL educators within a postsecondary context in association with their beliefs in student-centeredness. As the present investigation differs from existing studies in terms of the subjects studied, analytical approaches, and the implications of the findings, it is significant for five reasons.

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Third, the study is significant because it identifies the nature of the relationship between student-centered beliefs and well-integrated computer technology, using technology in different ways for student involved learning. Some studies suggested that when integrating technology, there is no relationship between teachers' educational beliefs and instructional practices (Judson, 2006; Palak & Walls, 2009; Windschitl &

Sahl, 2002). Other studies suggested that there is a relationship between how teachers use technology and their educational beliefs (Matzen & Edmunds, 2007).

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training programs, it is equally important for administrators to understand how the pedagogical beliefs of teachers relate to their use of computer technology.

Definitions

Key terms used throughout the course of this study include:

Computer-assisted Language Learning (CALL). Researchers have commonly accepted the acronym CALL as the fundamental term to refer to studies concerned with second language and computer technology with the objective of improving language-learning capacity through computerized means (Grupa, 2006).

Educational Technology. Although the term can refer to the different types of analog technologies that teachers can use to support learning, here it refers specifically to the ethical practice of making learning easier and enhancing performance using digital computer technology and electronic hardware and software (Januszewski & Molenda, 2008).

Information and Communication Technology (ICT). This concept refers to the computing and communication contraptions and features that individuals use to communicate, create, accumulate, distribute, and manage material for language teaching and learning support. The term ICT is, to a greater extent, replacing IT, the earlier dominant generic term for Information Technology (Richards, 2000).

Foreign Language (FL). A foreign language is one that learners study in a classroom in an environment where this language is not the language of daily communication (Oxford, 2001).

Student-centeredness. An approach that minimizes lecturing and direct transmission of factual knowledge and maximizes opportunities that involve the student

in discussions, discovery learning, problem resolution; applied, analytical, and Web-based activities; research, group, and cooperative learning groups; and use the Internet, word processing, the World Wide Web, and presentation software (Di Benedetto, 2005; Leu & Price-Rom, 2006).

Teacher-centered Approach. The teacher-centered approach involves traditional teaching during which the teacher acts as the only source for knowledge and learning, relies exclusively on textbooks, and discourages classroom discussions (Mathews, 2008).

Summary

In this chapter, the argument was that there is a lack of studies documenting the educational technology practices of postsecondary FL teachers. Though studies from K-12 contexts revealed that FL teachers have not maximized the potential of computer technology in foreign language instruction and learning (Cummings, 2008; Erben & Sarieva, 2008; Kim & Rissel, 2008), few studies attempted to examine how teachers' beliefs affect this underutilization (Judson, 2006). Therefore, through collecting data from an online survey completed by 248 postsecondary FL teachers at the DLIFLC, this study aimed to examine the relationship between these practices and teachers' beliefs in student-centeredness. This study differs from existing studies in terms of the subjects studied, analytical approaches, and the implications of the findings.

CHAPTER 2: LITERATURE REVIEW

Views on the relationship between teachers' beliefs in student-centeredness and their educational practices are conflicting. Some studies suggested that there is a relationship between teachers' educational technology practices and their beliefs in the centrality of the student (Ertmer, 2005; Matzen & Edmunds, 2007). Other studies did not find a significant relationship between beliefs and practices (Judson, 2006). The purpose of this quantitative, correlational study was to examine the direction and strength of correlation between teachers' beliefs in student-centeredness and their educational technology practices. The literature review focused on technology in foreign language learning, educational technology practices, student-and teacher-centered approaches, and the relationship between educational beliefs and educational technology practices.

Reviewing the literature consisted of consulting traditional and online sources published within the last five years in the areas of technology and second language learning, teacher cognition, teacher- and student-centered approaches, and teachers' educational technology practices. While the first set of sources consisted mainly of print books and refereed journals, the second set of sources consisted of books and journal articles available through online databases, particularly Ebrary, EBSCOHost, FirstSearch, Gale Academic OneFile, and ProQuest. During the literature review process, several interrelated themes emerged across a number of research studies, disciplines, and research paradigms. Chiefly, research into language learning emphasized the need for learners to develop both communicative and intercultural competencies, receive comprehensible input, and engage in communication and interaction through tasks that

resemble activities found in real life in a responsive, collaborative, student-centered environment (Hart, 2003; Hoopingarner, 2009; Levine, 2004; Nunan, 2004).

Research into educational technology suggested that it could provide comprehensible input; increase interaction; engage and motivate students; allow language use in authentic contexts; aid in enhancing intercultural competence; and improve overall language learning (Kessler, 2009; Kim & Rissel, 2008; Narciss & Koerndle, 2008; Tozcu, 2008). Additionally, when it comes to using technology in the classroom, it is plausible that teachers would depend on the educational beliefs that they have developed during their experiences both as students and as teachers (Pedersen & Liu, 2003). Research into technology integration revealed that teachers' beliefs are essential elements in converting their teaching into more constructivist practice with technology (Bitner & Bitner, 2002; Ertmer, 2005) and that such beliefs are the final barrier facing technology integration (Ma, Lai, Williams, Prejean, & Ford, 2008).

The review of the literature also revealed a serious lack of studies documenting the technology practices of postsecondary FL teachers or examining the relationship between their beliefs in student-centeredness and their educational technology practices. Among the resources researched for this study, a majority of the studies were conducted in K-12 settings (Barron et al., 2003; Dawson, Cavanaugh, & Ritzhaupt, 2008; Hermans, Tondeur, Van Braak, & Valcke, 2008; Judson, 2006; Levin & Wadmany, 2006; Moore, 2006; Wozney, Venkatesh, & Abrami, 2006). Another set of studies focused on pre-service teachers (Park & Ertmer, 2007; Wang, 2002). Only one study explored the educational practices of postsecondary FL teachers (Arnold, 2007).

Based on the themes that emerged during the literature review, this chapter falls into four sections: Technology and foreign language learning, teachers' educational technology practices, student- and teacher-centered approaches, and the relationship between teachers' beliefs and approaches to use of educational technology.

Technology and Language Learning and Teaching

Learning theories and best practices should inform any discussion about integrating technology into the classroom (Bitter & Legacy, 2008). Teaching methods affect how teachers teach language thereby affecting both student-centeredness and educational technology practices. For example, the Grammar-translation Method, which supported teacher-dominated classrooms, relied on the teacher to explain grammatical rules while students performed translation without any interaction or collaboration (Brandl, 2008; Lightbown & Spada, 2006). Therefore, teachers applying this method utilized the blackboard and later on the overhead projector, which supported this one-way transmission of information. The popular Audio-lingual Method of the 1950s and 1960s, which assumed that students learned best through repetition drills in the target language, changed the technology but did not change the teaching approach. This method allowed the audiotape and audio-labs to become fundamental in such classrooms; however, the teacher continued to be the sole the source of knowledge while interaction and student-centered traits remained rare (Osborn, 2002). The 1980s and 1990s witnessed a shift towards communicative language teaching, which emphasized engaging the students with authentic, meaningful, contextualized discourse that was suited for the use of information and communication technology ICT (Zhao, 2005).

As technologies in the 1990s changed, their integration into the classroom followed generally either a cognitive approach or a sociocognitive approach. The cognitive approaches to communicative language teaching assume that language learning does not occur through habit formation; rather, it happens through interaction with comprehensible, meaningful language (Nunan, 2004; Warschauer & Meskill, 2000). According to such approaches, the learner's output is beneficial only when it helps make the input more comprehensible or when it allows the learners to construct their own knowledge. By contrast, sociocognitive approaches, accentuate the social aspect of language acquisition as a process of edification or acculturation into discourse communities (Nunan; Warschauer & Meskill). Accordingly, students require opportunities for authentic social interaction that mimics real life and provides learners with comprehensible input through student collaboration on authentic tasks while, at the same time, learning both content and language.

In order to evaluate the potentiality of technology for advancing language education, Zhao (2005) reviewed research published in refereed journals between 1997 and 2001. The purpose of the study was to investigate the effectiveness of past and current practices in the application of ICT in language education as well as the availability and capacities of ICTs. Zhao's search with the keywords *Computer Assisted Language Learning* and *second language* in *First Search* generated 156 peer-reviewed articles. The meta-analysis of these articles revealed that technology in the language classroom, especially ICT, provides access to language and culture authentic materials, chances for communication in the target language, and feedback.

According to Zhao's (2005) findings, the uses of ICT, especially digital multimedia technologies, make access to learning materials more efficient than print materials or audio recordings for two reasons. First, when teachers create presentations using such media, the inclusion of audio, video, and print components can create stronger memory links than a single medium can. Second, such technologies provide students with opportunities for instant and accurate playbacks, which allow them to access segments, especially less understood ones, more easily. Third, the use of video materials and the Internet allows teachers to provide learners with context-rich linguistic and cultural materials more effectively than printed sources. Fourth, and finally, multimedia annotations can enhance comprehensibility through learner control.

Zhao (2005) noted that communication in the target language is another necessary condition for successful language learning. Language educators have used ICT, in a variety of ways, to create opportunities for language learners to communicate in the target language through interaction with the computer and interaction through the computer with remote audiences. Finally, in terms of feedback, computers have the capacity to provide instant and individualized feedback in contextualized and pedagogically sound ways. For example, computer-based grammar checkers and spell checkers are helpful in providing the student with immediate feedback on their written output.

In a recent survey of best practices in technology and language teaching, Hoopingarner (2009) concluded that effective uses of technology could indeed enhance language learning. After surveying numerous studies in the field, Hoopingarner concluded that technology serves various functions in the language-learning context. First, in addition to being an effective supplement for executing programmed instruction,

technology has the potential to make input comprehensible. Further, technology can increase students' cultural knowledge, facilitate both top-down and bottom up language processes, and expose the students to a variety of texts and listening pieces on the same theme. Finally, technology can aid learners in developing the individual language skills.

Kessler (2009) conducted a study over the course of a sixteen-week, online, content-based instruction course for Non-Native Speaker pre-service English teachers. Based on the study findings, Kessler posited that one evident advantage of using technology for language learning is enabling learners to use the target language in authentic contexts. Such activities, argues Kessler, drive students to seek autonomy in the target language though the mere insertion of technology in instruction does not assure positive effects on language learning outcomes. Indeed, other researchers have suggested that language teachers should use technology only in a manner that makes language teaching more effective and efficient (Hoopingarner, 2009). For that to happen, language educators should view technology as an assistive tool and not a methodology (Blake, 2001). Further, language educators should use technology only when its application aligns with best practices in the field and with the theories of language acquisition.

Tozcu (2008) conducted a study to explore the use of the interactive whiteboards in teaching the non-Latin based orthographies in the 47-week Basic Courses of Hindi, Pashto, Dari, Farsi, and Hebrew at the DLIFLC in Monterey, California. Tozcu collected descriptive data from 75 participants by using a Likert scale survey. Of the total participants, Tozcu asked 20 faculty members to complete an open form questionnaire. After analyzing the data by calculating the means and standard deviations of faculty responses, the findings revealed that faculty members viewed the interactive whiteboard

as a useful pedagogical ICT that increased students' enthusiasm, interest level, and motivation. However, the participants also reported that one of the disadvantages of such a tool is that only one student at a time can work on the board. Second, participants viewed the board as a distraction as some students focused on the interactive whiteboard without paying the necessary attention to the teacher or instruction.

Erben, Ban, Jin, Summers, and Eisenhower (2008) credited technology with the increase of authentic materials, cooperative learning, student-centered learning, and learner autonomy and motivation. Though language educators used computer laboratories in the 1970s in language instruction, it was not until the 1990s with the development of Internet services that learners were able to access authentic materials from the target culture. In addition, Internet applications, such as Skype and chat rooms, allow language learners to engage in conversations with native speakers in the target culture, which mimics learning in a true cultural context. When learners engage in cooperative learning, they negotiate meaning, depend on, and aid each other in realizing certain objectives or accomplishing tasks and, if abilities are mixed, applied scaffolding could take place. Learning takes place due to the interaction and communication exerted during such learning tasks, a notion accepted by both interactionist and sociocultural researchers (Erben & Sarieva, 2008). Networking technologies, research has shown, provide an ideal platform to conduct such activities. In student-centered learning, students engage in creating, understanding, and connecting with knowledge through tasks and topics of relevancy to their lives, needs, and interests. The Internet allows the learners to explore sites, gather material, analyze, synthesize, and present.

In an evaluative study, Narciss and Koerndle (2008) investigated the benefits and experiences of one teacher and twenty-one students integrating technology with social-constructive language learning scenarios. The researchers employed a mixed method approach and utilized observations, reflections, and questionnaires for data collection. Narciss and Koerndle maintained that if teachers seek integrative language learning approaches, they are required to engage in social-constructive learning scenarios that enable the learners to use the language actively, socially, creatively, and interactively. Within such learning contexts, teachers advance learning through the collaboration among students and between students and teacher. Consequently, because learners generally have background knowledge in common and because of their simultaneous participation in collaborative and cooperative activities, they indeed negotiate meaning and build knowledge. Moreover, Narciss and Koerndle advocated that computer-based technology and applications are effective in this process in that they equip teachers with tools that can be used to support learners' knowledge sharing, negotiation, and construction. Thus, to integrate computer-based technology successfully into social-constructive learning scenarios, teachers and learners are required to develop media literacy. Such literacy includes being proficient in the functional, cultural, and critical dimensions of accessing, understanding, analyzing, assessing, and communicating information in various forms (Narciss & Koerndle).

Dawson, Cavanaugh, and Ritzhaupt (2008) conducted direct observations of more than 400 classrooms in over 50 K–12 schools in 11 Florida districts to measure the changes in teaching practices that occurred during a school year that included laptop implementation and professional development. Further, the researchers utilized two

observation instruments to measure teaching practices and technology use along with The Mantel-Haentzel procedure to infer statistical differences between observations. The results of the study suggested that the use of laptops could lead to increased student-centered teaching, tool based teaching, and increased amounts of meaningful uses of technology across a wide range of educational contexts. Further, the researchers indicated that laptop implementation together with professional development might instantly influence teachers' instructional practices in a positive way.

Nonetheless, when choosing a certain technology, users need ground their choice in sound pedagogical objectives that align the specific enabling features of the technology with the intended outcome (Stockwell, 2007). For example, if the desire is to enhance a learner's listening skill, using an iPod player will be a suitable option. This way the learner can download material and podcasts in the target language and listen to them anywhere any time. Alternatively, through knowledge of the learners' strengths and weakness obtained from interactions and observation, a teacher may identify a need to develop a particular application for use with such students. For example, a teacher might use a classroom Blog or Wiki that would enable the teacher to tailor the application to meet the learners' needs. Nonetheless, in many instances, the types of technology chosen and how teachers should use them in the classroom are beyond the control of the teachers. Yet, administrators expect teachers to use such technologies in order to stay aligned with institutional decisions. Unfortunately, administrations in numerous educational institutions make decisions about what technology to use and how teachers should use them and expect teachers to incorporate these technologies into their courses immediately and willingly (Levy & Stockwell, 2006).

Educational Technology Practices

In order to determine how teachers in a large school district in Florida use technology as a tool for student learning, Barron et al. (2003) conducted a study that addressed the use of technology as a classroom tool for research, communication, productivity, and problem-solving. The researchers designed and sent a survey to all K-12 teachers in the school district. The survey focused on the domains of support; preparation; confidence and comfort; and attitude toward computer use. Despite the accessibility of the technology and availability of professional development, the study results indicated that the schools have not fully realized the goal of technology integration. For example, only 20% of the participating high school teachers and 10% of the participating English language teachers used technology as problem-solving tool.

Bebell et al., (2004) surveyed responses of approximately 3,000 K-12 mathematics, English language, science, and social studies elementary school classroom teachers from school districts throughout Massachusetts. The purpose of the study was to examine the ways in which teachers use technology. Results of the study indicated that the majority of teachers use technology for lesson preparation, grading, and professional email use rather than instructional use or teacher-directed student use.

In their study Wozney, Venkatesh, and Abrami (2006) investigated personal and setting characteristics, teacher attitudes, and current computer technology practices among 764 elementary and secondary teachers from both private and public schools in Quebec, Canada. In addition to surveying teacher demographics, current uses of technology, and availability of resources, the researchers utilized a Technology Implementation Questionnaire (TIQ) that consisted of 33 belief items grouped under

three broad motivational categories: Perceived expectancy of success, perceived value of technology use, and perceived cost of technology use. The researchers reported that 59% of the 764 respondents reported that computer technologies were occasionally or frequently used in their teaching activities and only 7% reported that they almost always use computer technologies in their instruction. Finally, 39% of teachers reported that they never or rarely integrate computer technologies into their classroom activities. Additionally, the study findings revealed that the World Wide Web and word processing were the most frequently used by teachers.

A study by Moore (2006) utilized a mixed methods design and used classroom observations over a three-year period and a questionnaire to gather data on foreign language public school teachers' use of existing technologies to teach culture. The researcher mailed questionnaires to the 2,000 foreign language teachers in Texas. Of the 394 teachers that returned the questionnaire, 262 were teachers of Spanish. Therefore, the researcher extracted the responses from the questionnaires returned by the Spanish teachers. Findings from the study revealed that teachers made minimal use of interactive technologies such as the Internet. Instead, they generally used video and television. Further, years of teaching experience appeared to be a major factor in determining if teachers incorporated technology into their teaching. Accordingly, teachers with the least years of teaching experience tended to have the lowest scores in almost all areas of technology use as opposed to more senior teachers.

Based on the assumption that the Internet offers educators in higher education new opportunities for teaching practices that actively involve students, Wang (2007) investigated internet use in university courses from students' perspectives. The ultimate

intention of the study was to assess if and how university professors are taking advantage of Internet tools such as email, bulletin boards, chats, listservs, and the Web as teaching and learning tools. Six hundred twenty-four students from three major colleges at a public university in a territory of the United States in the Pacific Rim participated in the study. They completed a survey questionnaire that Wang designed based on literature review and included generic internet use across all university courses, not focused on any particular majors. The researcher asked the participating students to rate internet use in university courses on a 5-point Likert scale. The analysis of the results showed that (a) internet use by faculty across the curriculum was low and (b) from student perspectives, faculty members underused the Internet in courses at the university.

Within language learning contexts, Kim and Rissel (2008) followed three male teaching assistants of European-American descent who taught different types of second language classes at the postsecondary level. The results of the study pointed to several interesting relationships. First, the beliefs of the instructors had the greatest impact on how they used computer technology and on their attitudes toward its implementation. Second, the study findings showed that higher computer literacy did not necessarily translate into more frequent use of computers. Third, a hindering factor in using technology in the classroom was the teachers' belief in the role of the computer in supporting students' interaction. Fourth, the participants' views of themselves as language instructors and their beliefs about language teaching were foremost in their reflections on the use of computers. Fifth, the beliefs of the three instructors about their roles and that of interaction in the classroom affected how they used technology.

Ultimately, the findings of Kim and Rissler's study confirmed that teachers with social constructivist beliefs tend to use technology more than others do.

A study by Arnold (2007) investigated how instructors in higher education utilized instructional technology (IT) for foreign language learning. The researcher utilized an online-survey with 173 college foreign language teachers representing 32 different four-year institutions in Alabama, Florida, Georgia, Kentucky, South Carolina, and Tennessee. Though the respondents taught a variety of target languages, the majority taught Spanish (41%), French (32%), and German (19%). Representation from other languages included only 1 teacher of Arabic, 1 teacher of Chinese and 2% to 5% of other languages including Italian, Portuguese, Japanese, and Russian. Findings suggested that the vast majority of participants did use computer technology for their teaching, but at a very basic level. Further, the results indicated that utilitarian reasons and second, pedagogical benefits factors motivate teachers' use of IT, which suggested that teachers generally use computer technology to assist instruction rather than to promote learning. Further, based on the findings of the study, Arnold argued that teachers of foreign language within postsecondary contexts use IT in a fashion similar to their colleagues in other disciplines and teachers at the elementary and secondary levels and in other fields.

Teacher- and Student-centered Approaches

In recent years, many foreign language instructors at the different levels of education have sought ways to provide learners with experiences that move language learning beyond the focus on survival skills, grammar, and structured reading about culture to enhanced levels of cultural literacy and communicative competence in the target language (Levine, 2004). This required students to interact and engage in more

collaborative activities leading to the creation of more student-centered activities.

Further, as the needs and interests of today's learners have changed in comparison with older generations, teachers also had to change how they teach, structure, and manage their classrooms.

By contrast, teacher-centered approaches, also described in the literature as subject-centered, mimetic, teaching as transmission, and direct instruction, put the teacher in total control of what to teach, how, when, and under what conditions, thereby making the teacher solely responsible for imparting knowledge, skills, and values unto students (Cuban, 2007). Accordingly, the teachers focus more on teaching the content rather than on student processing (Brown, 2003).

A chief characteristic of teacher-centered approaches is the teacher's role in transmitting knowledge while students memorize and recapitulate that information. Thus, teachers have full the control for learning. In turn, they use their expertise to help learners make connections. Further, teachers are less concerned with knowing the learners or learning about the strategies with which they process information and compose knowledge. Accordingly, in such classrooms language educators rely on direct instruction and rarely do they allow open-ended questions, tasks, or problem-based projects. Further, there are very limited opportunities for student-student or student-teacher interaction. Additionally, what students learn within such approaches is context-independent because student learning is often detached from real-world cases (Uden & Beaumont, 2006). Teacher-centered approaches resemble factories in that both intend to maximize efficiency through strictly proscribed processes (Thompson, 2003).

On the other hand, student-centered approaches, also known in the research as child-centered, progressive, teaching as facilitating, transformative, and constructivist (O'Neill & McMahon, 2008), refer to those approaches that allow students to have responsibility in deciding what is taught and how it is learned (Cuban, 2007). In such contexts, with the guidance of teachers, students learn content and skills through different tasks. While students are focusing on the content learned, they also focus on the ways they learn while working collaboratively to solve authentic problems and to examine, argue, or defend alternative points of view. In addition to focusing on how students learn, a fundamental aspect of student-centered approaches is the attention to the students' individual characteristics, background, experience, and needs (Brown, 2003). Therefore, the central principles of student-centered learning are self-empowerment, active learning, cooperative learning, critical thinking, and problem solving (McFarlane & Berg, 2008).

When teachers empower students are empowered, they allow them to make decisions for themselves and accordingly choose activities and approaches that best fit their needs, styles, and learning preferences. Further, such students become less dependent on the teacher for learning and may venture outside the classroom confinements to learn, which qualifies them as active learners.

Active learners have higher motivation as they assume personal responsibility for contributing to their own learning as well as can learn and apply what they learn better (McFarlane & Berg, 2008). Indeed, various studies support the claim that active learning increases motivation, actual learning, and performance (McFarlane & Berg). Furthermore, cooperative learning can compound such advantages, especially when it occurs as students work in pairs or group and share their knowledge and experiences.

Numerous research studies have documented a positive impact on the academic achievements and grades of those students that study cooperatively as opposed to those that study individually. In a qualitative study, McFarlane and Berg (2008) investigated the learning experiences of seven members of a research group to explore the impact on Applied Foreign Language Department students who had not experienced student-centered learning, of shifting from a traditional learning approach to understanding and fostering some of the principles most commonly used in student-centered learning. Data collection instruments included personal journals, recorded group meetings, interviews, and observations.

McFarlane and Berg (2008) noted that students who work cooperatively, reach a comfort level that later contributes to higher retention and achievement as well as the development of interpersonal skills. Additionally, collaboration promotes critical thinking which develops as students interact with material that parallels the content and learning (McFarlane & Berg, 2008). As students navigate through problem-solving processes and engage in discussions, brainstorming, and finding solutions, they develop critical thinking skills. Finally, as students use resources from collaboration and independent research, share knowledge and information, and make connections to solve the problems, they improve their problem solving skills, which can help guide them in their learning process.

Key differences between student and teacher centered approaches include goals, roles, motivational orientations, assessments, and student interactions (Pedersen & Liu, 2003). In a qualitative study that aimed to identify key issues in the implementation of a computer-based program, Alien Rescue, designed to support student-centered learning and to examine teachers' beliefs about those issues, the researchers interviewed fifteen

middle school science teachers and observed them over the course of an academic year. Of the fifteen, nine participated in individual interviews; seven of these and the remaining six teachers participated in two focus groups; and the researchers approximately conducted 25 hours of observations in seven teachers' classes. The findings of the study pointed to how teachers conceive of the differences between teacher- and student-centered approaches.

According to Pedersen and Liu (2003), unlike student-centered learning contexts where students work to provide a response to a central question, in teacher-centered contexts, the teacher sets the goals and students work to achieve these objectives. Thus, the latter approaches diminish student ownership over the process of learning. Additionally, in such contexts, teachers not only set the objectives, but they also choose activities designed to help learners meet those objectives, and guide or direct students through a systematic process and resolve any difficulties they may encounter. By contrast, in student-centered learning, the teacher presents the task and acts as a facilitator while students determine the nature of the response they will develop and then formulate and carry out a process to develop that response. Instead of volunteering answers and solutions to difficulties, teachers using these approaches engage the students in a process of inquiry that helps them identify alternative paths or resources. This furthers the students' engagement in the learning process, thereby increasing their motivation. On the other hand, teacher-centered contexts rely partially on extrinsic motivators, such as grades, degrees, or other reward, to motivate students' efforts to learn. Incidentally, this ties in directly with assessment. In teacher-directed instruction, teachers rely on tests to yield numerical data that they use to determine grades, which in turn motivate students.

On the contrary, student-centered approaches to assessment prefer to focus on the process and product. Finally, interaction, which is essential for language learning, shifts from being student-teacher only to become student-student as well. The student-centered approaches give students the control in determining group membership, the nature of the interactions between the members, and even the role each member of the group plays.

In the foreign language education field, teacher-centered approaches were the dominant paradigm until the rise of the Communicative Language Teaching (CLT) approach in the 1970s. Teacher-centered classroom relied heavily on utilizing lectures and textbooks thus making the focus on the teacher and each student's individual work (Lu, Huang, & Sun, 2008). The teacher-centered approaches have formed as a natural extension for certain teaching methods that relied on language-centered pedagogies (Kumaravadivelu, 2006). These methods focus on form and assume that giving the learner opportunities to practice pre-selected, pre-sequenced language structures will deliver language mastery. For example, the Grammar-Translation Method capitalizes on the students' ability to translate texts; the Audio-lingual method capitalizes on the learners' ability to repeat the correct forms of sentences as uttered by their teacher (Lightbown & Spada, 2006). By default, teachers act as the sources of knowledge. Furthermore, such approaches make teachers responsible for thinking and make students responsible for memorization, two pervasive characteristics of teacher-centeredness (Brown, 2008; O'Neill & McMahon, 2008). In addition, learning becomes an individual endeavor, which increases competitiveness and makes sharing ideas a resentful experience, another two characteristics of teacher-centeredness (Fink, 2003; Theroux, 2004).

The emergence of student-centered approaches in general education in the 1970s was matched by the rise of CLT as a needs-based approach to teaching (Lu, Huang, & Sun, 2008). This later encouraged the development of learner-centered methods for language learning (Kumaravadivelu, 2006). Such methods rely predominantly on learner and learning centered pedagogies (Kumaravadivelu). Learner-centeredness is a theory of learning and a theory of teaching (Kavanoz, 2006). Historically, changes in the goals of and insights into language and into the process of language learning propelled the shift towards learner-centeredness within language learning contexts. It is worth noting here that, in foreign language education, a superficial distinction is at times made between the terms learner-centered and student-centered in that the latter refers to dynamics and configurations concerning students in the classroom whereas the former refer to language learners in general including those not in the classroom. Nonetheless, for the purposes of this study, the researcher uses the two terms interchangeably.

The learner-centered methods such as CLT focus on form and meaning as a basis for language mastery and conceive language learning as both intentional and incidental. Followers of such methods provide the learners with opportunities to practice pre-selected, pre-sequenced linguistic structures and communicative functions that relate to their needs, wants, and situations (Kumaravadivelu, 2006). On the other hand, learning-centered methods such as the Natural Approach conceive language development as incidental and thus concentrate on meaning rather than form. Such methods concentrate on the cognitive process of language learning and seek to provide learners with opportunities to participate in open-ended, meaningful interaction through problem-solving tasks in the classroom (Kumaravadivelu).

The learner and learning centered methods are best suited for a student-centered classroom in which students actively engage in their own learning (Nunan, 2004). Within such contexts, the role of the teacher is that of a facilitator. The teacher then aids the students in the processes in learning, inquiry, problem solving, and exploration of emotional needs (Kavanoz, 2006).

According to Alatis (2009), some teachers may find teacher-centered approaches favorable because of their exposure to them as students and because they require relatively little preparation and little concern with the students or their activities. However, these teachers may discover that only a few of the students are actually engaged in language learning and that students are only attaining knowledge about the language but not learning how to use the language. Therefore, student-centered teaching may benefit collective and individual language learning because it ensures automaticity, intrinsic motivation, and culture-language connectivity as well as development of inter-language and communicative competence (Guo-Chen & Ming-Li, 2008).

Automaticity in interaction is necessary as it frees the learner from the controlled modes and focus on form and structure and centers attention instead on meaning and communication while using the language. As students engage in such interaction, their motivation levels tend to rise as they proceed through the stages of fulfillment, self-actualization, satisfaction, and self-reward (Guo-Chen & Ming-Li, 2008). Additionally, while involved in the interaction, students experience the cultural norms that are associated with the speech patterns that they encounter. Meanwhile, while intentional learning is taking place, incidental learning, or acquisition also occurs, resulting in the inter-language in which the teacher's feedback plays a monumental role. Finally, during

the interaction, the elements of communicative competence are involved and work together to produce successful communication (Pedersen & Liu, 2003).

Based on the findings of their study, Lu, Huang, and Sun (2008) recommended that foreign language teachers assume the roles of activity designer, coordinator, source of background information, and assessor. As an activity designer, the teacher builds nearly authentic communicative environment to motivate students' desire for communication. As a coordinator, the teacher tries to maximize the teaching time and ensure smooth operations throughout the class. As a source of background information, the teacher provides references about culture and language that are not readily presentable in texts. Finally, as an assessor, the teacher assesses proficiency and gives feedback appropriately to ensure that students achieve the prescribed learning objectives.

Teachers' Beliefs and Approaches to the Use of Educational Technology

Teachers' beliefs are compatible with their instructional behaviors and influence their expectations as well as their students' achievement (Scharlach, 2008). In conjunction with beliefs, researchers argued that teachers' attitudes serve as the strongest predictors of behavior (Ertmer, 2005). Indeed, theorists and researchers agree that attitudes and beliefs comprise a collection of constructs that characterize and encapsulate the configuration and content of mental states that drive a person's actions (Bai & Ertmer, 2008). Therefore, when attempting to explain how and why teachers use technology the way they do or why they use it less than other professionals do, researchers have resorted to examining teachers' beliefs and attitudes (Ertmer, 2005, Lambert, Gong, & Cuper, 2008; Park & Ertmer, 2007; Shaunessy, 2007).

Generally, researchers resort to studying beliefs because they guide the decisions of teachers and people in general when knowledge structures and cognitive structure do not serve them well in unfamiliar situations (Pedersen & Liu, 2003). However, defining what a belief is has proven a laborious undertaking. When surveying the literature many researchers face with the difficulty of identifying commonly accepted definitions, conceptualizations, and understandings of beliefs and belief structures (Chen, 2008). The complexity to differentiate beliefs from knowledge is responsible for the difficulty in defining teacher beliefs and accordingly arguing for or against the possibility to adjust them. Teachers' beliefs are typically instinctive assumptions about education related issues such as teaching, learning, curriculum, schooling, and knowledge (Levin & Wadmany, 2006).

Foreign language teachers who enter the profession have probably already experienced language learning as students (Borg, 2003; Wilbur, 2007). Further, in addition to developing new beliefs from that experience, college experience further affects their existing beliefs. Therefore, it is not hard to believe that foreign language teachers come into the profession with a developed, stable system of beliefs on teaching and learning. Similar to teachers in other fields, they would probably view teaching from a teacher-centered approach in which they provide knowledge for students to memorize which eventually prevents them from adopting a constructivist view of technology integration (Ma et. al., 2008). However, how teachers' pedagogical beliefs influence their educational technology practices remains unclear.

For example, Judson's (2006) research revealed that there is no relation between teachers' beliefs and practices. According to the study findings, teachers' pedagogical

beliefs did not necessarily resonate in their classroom practices when integrating technology. In the study, 32 classroom teachers completed a CSCUT survey that measured their beliefs about instruction. Further, Judson observed teachers and rated them with the Focus on Integrated Technology: Classroom Observation Measurement (FIT: COM). The FIT: COM measured the degree of alignment between technology integrated lessons and constructivist principles. Upon conducting a correlation analysis, Judson did not find any significant correlation between teaching practices, as measured by the FIT: COM, and teachers' reported philosophy, as measured by the Teaching Philosophy section of the CSCUT instrument. Additionally, Judson did not find any significant correlations between teaching practices and teachers' attitudes toward technology.

Levin and Wadmany (2006) conducted a three-year exploratory, longitudinal study to analyze and interpret the development of teachers' beliefs regarding learning, teaching, and technology, and their instructional practices, in the context of integrating technology-based, information-rich tasks in six 4th-6th grade classrooms. The researchers employed interviews, questionnaires, and observations to examine both teachers' beliefs and classroom practices. The findings revealed that following multi-year experiences in technology-based classrooms, teachers' educational beliefs had changed quite substantively, demonstrating multiple views rather than pure beliefs. The study suggested that it is easier to change classroom practices than educational beliefs. Additionally, the study demonstrated that spending more time in a technology-rich learning environment positively alters teachers' educational beliefs and classroom practices. These findings support the view that it is possible to change teachers' beliefs. The study also

demonstrated that educational change involving information technology is a personal process, particular to each teacher. It indicated that even when the educational context is technology-rich, dynamic, and supportive, not all teachers use the available technology in an innovative way that supports student-centered learning.

Wang (2002) investigated the perceptions of the teacher's role in classrooms with computers among 78 pre-service teachers who had completed all their coursework at a public university in a territory of the United States in the Pacific Rim and were ready for student teaching in the fall 1999. The participants completed a survey questionnaire that solicited the pre-service teachers' perceptions of the teacher's role in classrooms with computers, and their choice of teacher-centered computer use versus student-centered computer use. The results did not reveal a significant shift among the 78 pre-service teachers computer use toward student-centered practices. The pre-service teachers involved in this study stated that classroom computer employment could be both student-centered and teacher-centered; however, they were more likely to use computer technologies as a teacher-centered tool than a student-centered tool.

In a sociocultural analysis of three teachers, Windschitl and Sahl (2002) employed a multi-case study approach using an ethnographic perspective. This study extended from the beginning of the 1998-1999 school year through the 1999-2000 school year and three months into the 2000-2001 school year. The results revealed that despite the availability and accessibility of laptops, teachers still did not practice constructivist instruction. Accordingly, technology did not affect pedagogy in any way. Indeed, though all students had their own laptops, two of the participating teachers were not encouraged to use the technology itself to any significant degree in their classrooms.

Most recently, Hermans, Tondeur, Van Braak, & Valcke (2008) used multilevel modeling to investigate the relationship between 525 primary school teachers' educational beliefs and their computer use, while controlling for the impact of technology-related determinants such as computer experience and teacher-related demographic variables. The researchers supported the hypothesis that teacher beliefs are significant determinants in explaining why teachers adopt computers in the classroom. The results of the study showed that when it comes to teachers' classroom use of computers, constructivist beliefs have a positive effect while traditional beliefs have a negative impact.

Despite the findings of the aforementioned studies, there is a reason to argue that even when computer technology and appropriate technical support are available to teachers who maintain positive attitudes toward technology and are comfortable using it, teachers' beliefs and practices toward a student-centered paradigm remain unchanged (Palak & Walls, 2009). The study conducted by Palak and Walls generated evidence that teachers use technology in ways that support their already existing teacher-centered instructional practices. Teachers, including those with student-centered beliefs, did not use technology to support student-centered practices. Finally, the study indicated that teachers most frequently used technology for preparation, management, and administrative purposes.

Nonetheless, the study conducted by Palak and Walls (2009), applying a sequential mixed methods design, produced conflicting results. The researchers collected the quantitative data for the study by using the Inventory of Philosophies of Education and the Perceptions of Computers and Technology from 104 teachers in 28 Benedum

Collaborative Professional Development Schools in West Virginia. These schools had committed to school reform, professional development, and integrating instructional technologies and had adequate technical infrastructure and equipment. As for the qualitative portion, the researchers applied maximum variation sampling and selected two teacher pairs from opposite ends of the sample population distribution as representative of teachers with diverse educational beliefs. Subsequently, the researchers collected data for this portion through one classroom observation, one interview, a lesson plan, and each teacher's written reflections to four open-ended questions about their educational beliefs and practices. On the one hand, the quantitative results suggested that neither student-centered nor teacher-centered beliefs are powerful predictors of teachers' practices and that teachers' attitudes toward technology seem to be the most significant predictor for teacher technology use. The qualitative analysis, on the other hand, indicated that teachers' positive attitudes toward technology do not necessarily have the same influence on student technology use and instructional strategies that are compatible with the student-centered paradigm. Furthermore, on comparison to qualitative data the teachers' self-report data was unsuccessful in capturing teachers' views of what constituted student-centered compatible instructional strategies. Palak and Walls also argued that teachers' beliefs are extremely difficult to strictly categorize as student-centered or teacher-centered with self-report data alone. Indeed, it was only through teachers' testimonies that the researchers were able to describe how teachers had students use technology in the classroom. These testimonies suggested that those with teacher-centered beliefs employed highly teacher-controlled strategies where students worked in

self-contained technology-supported learning environments, and teachers used technology as a reward, for drill-and-practice, and independent learning.

The purpose of a study by Park and Ertmer (2007) was to investigate the impact of problem-based learning (PBL) on pre-service teachers' beliefs regarding technology use and on their intended teaching practices as captured by detailed lesson plans. The study employed a quasi-experimental research design using pre- and post-surveys and lesson plans to investigate the impact of problem-based learning on pre-service teachers' beliefs regarding technology use. Two intact sections were assigned to the treatment condition (PBL: $n = 12$ and $n = 16$) and one to the control condition (control: $n = 20$). One instructor who had previous experience teaching the course, both traditionally and with PBL, taught all three sections. The first research question examined the impact of PBL on teachers' beliefs regarding technology use. In order to answer the first research question, the researchers examined teachers' pedagogical beliefs, self-efficacy beliefs for technology integration, and teachers' beliefs about the perceived value of computers for instructional purposes. Upon analysis of data, the researchers did not find statistical significance on any of the measures related to beliefs. This means that, in this study, the use of problem-based learning, when compared to traditional teaching approaches (control), did not significantly impact pre-service teachers' beliefs regarding technology use.

The degree of strength of teachers' beliefs in student-centeredness, research suggests, would indeed fuel their perseverance for success, and allows them to mitigate difficulties faced while using educational technology. Within an exploratory, qualitative case study research design, Ertmer et al. (2009) examined the perceptions of tensions and

challenges experienced while implementing a new technology-enhanced Problem-based Learning (PBL) approach of five female middle school teachers during the 2005-2006 school year. Analysis of data collected from face-to-face interviews, a focus group interview session, and classroom observations revealed that the flexibility of the teachers along with their beliefs in a student-centered approach aided them in planning, implementing, and assessing student work as well as incorporating technology resources and development tools.

In order to explore the relationships between teachers' pedagogical beliefs and technology integration, Chen (2008) utilized qualitative research methods that included classroom observations and interviews to survey 12 Taiwanese high school teachers. The study results revealed inconsistency between the teachers' expressed beliefs and their practices. Chen reported that although all the participants reported high levels of agreement on constructivist concepts, their instruction remained teacher-centered and lecture-based, and their technology use was to support such instruction. According to Chen, the reasons for the inconsistency were the influence of external barriers, teachers' inadequate theoretical understanding, and teachers' other inconsistent beliefs.

Jimoyiannis and Komis (2007) examined current teachers' beliefs and attitudes towards ICT in education. A total of 1165 Greek primary and secondary education teachers completed a survey immediately after completing a training program on basic ICT skills. The research findings revealed significant differences in teachers' beliefs and ICT skills according to their teaching experience. While those with experience ranging between 1 and 10 years and veteran teachers with more than 30 years of teaching experience are positive in general, teachers whose experience ranges between 20 and 30

years hold negative beliefs. Further, the results indicated that aside from those who teach science, teachers of traditional secondary subjects are more conservative and precautionous about using ICT tools in their instruction when compared to primary and other secondary teachers such as foreign language teachers.

Ertmer (2005) argued that regardless of the length of their experience, most teachers have limited understanding of how they could integrate computer technology to facilitate teaching and learning in the classroom. Accordingly, when teachers attempt to use technology in the classroom, they tend to rely on their beliefs and prior experiences. Therefore, Ertmer urged administrators to take into consideration teachers beliefs prior to attempting to integrate technology. The pedagogical beliefs that teachers' possess can directly influence the development of beliefs about both technology integration and related practices.

Hernandez-Ramos (2005) surveyed 350 K-12 teachers in Santa Clara County, California, also known as Silicon Valley, in the spring of 2004. The results of the study revealed that among teachers there is a positive correlation between constructivist beliefs and frequent use of technology for both themselves and their students. Further, the findings indicated that constructivist teachers are more likely to direct their students to use computers for meaningful work with computers regardless of the number of machines available to them.

Summary

Based on the themes that emerged during the literature review, this chapter included four sections. The first section explored how technology contributes to foreign language learning. The second section contained a comparison between the tenets of

teacher-centered and student-centered approaches. The third section examined teachers' educational practices. Finally, the fourth section explored the relationship between teachers' beliefs in student-centeredness and their educational technology practices.

Research into language learning emphasizes the need for learners to develop both communicative and intercultural competencies, receive comprehensible input, and engage in communication and interaction through tasks that resemble activities found in real life in a responsive, collaborative, student-centered environment (Hart, 2003; Hoopingarner, 2009; Levine, 2004; Nunan, 2004). Further, research into educational technology suggests that it can provide comprehensible input; engage and motivate students; allow language use in authentic contexts; aid in enhancing intercultural competence; and improve overall language learning (Kessler, 2009; Narciss & Koerndle, 2008).

Nevertheless, the literature review revealed that although foreign language teachers have been using technology in their classrooms, its full potential has not been fully realized (Cummings, 2008; Erben & Sarieva, 2008; Kim & Rissel, 2008). Moreover, despite the recent pedagogical developments, languages continue to be taught in teacher-centered classes wherein students typically assume a passive role, and activities focus primarily on drill and practice, imitation, memorization, and repetition (Lee & VanPatten, 2003; Luke, 2006). Finally, it was also noted that teachers still tend to "use linear, authoritative, teacher-centered methods, disregard computers, and resist efforts to move the dominant paradigm away from teacher-centered teaching to a more student-centered classroom" (Levin & Wadmany, 2006, p. 157).

Language learners need not engage in drills and grammatical explanations; rather, they require understanding how native speakers use the language through partaking in

activities that resemble real-life (Hart, 2003). Hence, the teacher needs to be responsive, collaborative, problem-centered, and democratic about how, what, and when learning occurs (Dupin-Bryant, 2004). At the same time, the teacher should utilize the available technology as an assistive tool. In other words, the teacher needs to integrate technology and allow more student-centeredness into the language classroom.

As evidenced in research, student-centeredness relies heavily on the role of the teacher. Within student-centered classroom, the teacher is a facilitator rather than a lecturer, presenter of information, or distributor of knowledge (O'Neill & McMahon, 2008). Thus, the teacher's focus is not on uniformity, but rather on giving students options (Marino, 2006), thereby giving individual students the responsibility for their own learning (McCombs, 2004) and thinking (Brown, 2008). This way, while students are working on increasing their individual knowledge they are willing to share knowledge with other students in the classroom (Theroux, 2004) thus increasing their motivation (Marino).

However, before expecting teachers to adopt student-centeredness or integrate technology, it is essential to consider their beliefs about and attitudes towards both. Pedersen and Liu (2003) noted that when it comes to using technology in the classrooms, it is more plausible that teachers would rely on the educational beliefs that they have acquired during their experiences both as students and as teachers. Thus, it is misleading to assume that teachers will enthusiastically adopt research findings or administrative regulations or radically alter their practices to fit the theoretical foundations without some modification to their beliefs. Pedersen and Liu argued that beliefs are better predictors of behavior and thus people's beliefs, more so than knowledge, influence how they define

problems. Therefore, for language teaching and learning to be effective and for technology integration to be constructive, it is vital to take into account teachers' beliefs about student-centered learning and how these beliefs are likely to shape their use of technology.

The literature suggested that teachers' beliefs about student centeredness are reflective of their experiences as language learners and teachers and affect how they approach teaching the target language (Borg, 2003; Levin & Wadmany, 2006; Yang & Wilson, 2006). Further, there were strong indications that once properly identified and with adequate training, experience, and reflection, teachers' beliefs can be modified (Meskill & Anthony, 2007). However, in the mind of the teacher, components of knowledge, beliefs, conceptions, and intuitions are inextricably entwined (Borg). Additionally, teacher beliefs are multifaceted and, therefore, do not fit neatly into discrete categories (Buehl & Fives, 2009). Finally, teachers' beliefs are the ultimate impediment to the integration of technology (Ma et al., 2008).

The literature review indicates that teachers' beliefs are essential elements in transforming their teaching into more constructivist practice with technology (Bitner & Bitner, 2002; Ertmer, 2005). Accordingly, understanding these beliefs and the relationship between them and classroom practices should help clarify how and why teachers make decisions about the use of technology. One possible explanation for insufficient technology integration into the foreign language classroom pertains to teachers' pedagogical beliefs; personal theories concerning learning and teaching; and beliefs in student-centeredness (Judson, 2006; Levin & Wadmany, 2006). This explanation points to one thing: The importance of understanding the relationships

between teachers' beliefs, attitudes towards computers, classroom instruction practices, and technology usage (Cochran-Smith & Fries, 2005; Ertmer; Levin & Wadmany; Park & Ertmer, 2007).

Finally, the literature review supports the lack of studies that identify the educational technology practices of postsecondary FL teachers. Further, the literature review points to two issues of direct pertinence to this dissertation. First, the relationship between beliefs in student-centeredness and teachers educational practices is unclear. Second, there is a dearth of studies that focus on this relationship among postsecondary FL teachers. Out of 15 studies reviewed in this chapter, only three studies - Arnold (2007), Kim & Rissel (2008), and Moore (2006) - focused on teacher educational practices in FL contexts. Further, only the studies of Arnold and Kim and Rissel focused on postsecondary contexts, while the remainder of the studies focused on K-12 settings.

CHAPTER 3: RESEARCH METHOD

Previous studies suggested that postsecondary FL teachers have underutilized computer technology in the classroom for FL teaching and learning (Arnold, 2007; Zhao, 2005). In order to explain this underuse of computer technology among this segment of teachers, reliance has been on research from other disciplines within general education. Research from general education suggests that the relationship between teachers' beliefs in student-centeredness and their educational technology practices could account for this underuse. However, researchers could not conclusively agree on the nature of the relationship between teachers' beliefs in student-centeredness and their educational technology practices (Judson, 2006; Matzen & Edmunds, 2007; Palak & Richard, 2009; Windschitl & Sahl, 2002). Therefore, the purpose of this quantitative, correlational study was to examine the direction and strength of correlation between beliefs in student-centeredness and the educational technology practices among postsecondary FL teachers. The study represented a partial investigation of postsecondary FL instruction, as the sample was limited to teachers at the DLIFLC.

Below, the chapter commences with a description of the research methodology and design. Next, a description of the research instrument precedes a description of the study participants including the selection procedure and characteristics. The subsequent section contains a description of the procedures, data collection, analysis steps, and study limitations. Finally, the chapter concludes with a brief discussion on the appropriate ethical assurances.

Restatement of the research questions and hypotheses.

To examine the relationship between beliefs in student-centeredness and educational technology practices among postsecondary FL teachers, three questions guided the dissertation. These questions and corresponding hypotheses were:

- Q1.* What is the relationship between postsecondary FL teachers' degree of belief in student-centeredness and the frequency with which they use particular types of software in class?
- Q2.* What is the relationship between postsecondary FL teachers' degree of belief in student-centeredness and the frequency with which they direct students to use particular types of software for learning in class?
- Q3.* What is the relationship between postsecondary FL teachers' degree of belief in student-centeredness and the frequency with which they employ various means of integrating computers in class?

Hypotheses

H1₀: There is no significant positive correlation between postsecondary FL teachers' degree of belief in student-centeredness and the frequency with which they use particular types of software in class.

H1_a: There is significant positive correlation between postsecondary FL teachers' degree of belief in student-centeredness and the frequency with which they use particular types of software in class.

H2₀: There is no significant positive correlation between postsecondary FL teachers' degree of belief in student-centeredness and the frequency with which they direct students to use particular types of software for learning in class.

H2_a: There is significant positive correlation between postsecondary FL teachers' degree of belief in student-centeredness and the frequency with which they direct students to use particular types of software for learning in class.

H3₀: There is no significant positive correlation between postsecondary FL teachers' degree of belief in student-centeredness and the frequency with which they employ various means of integrating computers in class.

H3_a: There is significant positive correlation between postsecondary FL teachers' degree of belief in student-centeredness and the frequency with which they employ various means of integrating computers in class.

Research Methods and Design

For this study, the research method was quantitative, the research design was correlational, and an online survey was the technique used for collecting data. A number of reasons encouraged the use of a quantitative research method, correlational design, and online survey. First, the use of a survey approach was preferred for this study because it is one of the most widely employed tools in educational research (Gall, Gall, & Borg, 2007) and it is effective in describing the beliefs of a large population (Scott & Morrison, 2006). Further, a general purpose of survey research is to generalize from a sample to a population so that a researcher can draw inferences about some characteristic, attitude, or behavior of a population of interest (Creswell, 2003). Finally, through the use of a survey, all the survey recipients receive and answer the same questions (Wiersma, 2005) and accordingly the researcher can report the responses and results of each questionnaire item with a larger number of participants.

Five reasons justify using a quantitative research method for this study. First, quantitative research was best suited for discerning the nature of the relationship between the variables (Gall, Gall, & Borg, 2007). Second, the use of quantitative research reflected the need to convert the phenomena of beliefs in student-centeredness, which do not naturally exist in quantitative form, into quantitative data that facilitated statistical analysis (Muijs, 2004). Third, quantitative research worked well for explaining the teachers' educational technology practices and for testing hypotheses regarding the nature of the relationship between these practices and beliefs in student-centeredness (Gall, Gall, & Borg). Fourth, because the study utilized a series of tests and techniques to arrive at facts, the data generated could be projectable to a larger population (Gall et al.). Finally, because it is so deeply rooted in numbers and statistics, quantitative research has the ability to effectively translate data into easily quantifiable charts and graphs and allow the researcher to capitalize on the rhetorical power of numbers for a wide audience (Muijs).

Two reasons justify the use of a correlational design for this study. First, a correlational design would indicate the strength and direction of linear relationship between the variables without the need to manipulate or control those variables (Gall et al., 2007; Rudestam & Newton, 2007). Second, though it did not enable the researcher to arrive at definitive conclusions about the cause-and-effect relationship, a correlational design enabled the researcher to analyze how the variables connect.

Participants

The target population was 1,200 postsecondary teachers of 24 foreign languages and several dialects who teach in the basic language programs at DLIFLC in the Presidio of Monterey, California. The criteria for selecting DLIFLC was the number of foreign

languages taught, the availability of technology and training, and the fact that the teachers have completed a month long instructor certification course that includes training on foreign language teaching methodology, task-based instruction, and classroom technology use. Similarly, the purpose of choosing DLIFLC teachers was that they teach more than 24 languages, work in technology-enhanced classrooms, and have received training on foreign language instruction and use of computer technology in the classroom. Additionally, each teacher in the study had access to a computer within his or her workspace. Finally, all the teachers had completed the Pre-service Instructor Certification Course (ICC). The ICC, which consists of a four-week, 160-hour course and includes training on using technology in the classroom, aspires to prepare incoming instructors to teach their perspective language. Furthermore, a large percentage of teachers that have worked at DLIFLC have completed the Instructor Recertification Course (IRC), which is a one-week course that recertifies teachers that have taught at DLIFLC for five years or more.

The teachers are predominantly native speakers of their target languages. Their work experience at DLIFLC ranges between two months and thirty years as it takes two months for a new hire to be able to use government computers. Their educational credentials are also varied. Some of the teachers have degrees in language teaching while some have degrees in dentistry, medicine, and agriculture. Nevertheless, all the teachers that participated in this survey have completed their Instruction Certification Course and are currently teaching in the classrooms.

Sampling.

The target population was 1,200 postsecondary foreign language teachers at the Defense Language Institute Foreign Language Center who teach in the basic language programs at the Presidio of Monterey. Upon conducting power analysis with a margin of error of 5%, a 90% confidence level, and a 50% response distribution, the minimum proposed sample was 222 participants. However, because the likelihood that the participant scores of a larger sample will be representative of the whole population is high (Gall et al., 2007), the researcher decided to survey the accessible 1,200 teachers who teach basic program languages. After obtaining the proper permission, the entire teaching faculty at the Presidio of Monterey received the link for the online survey at the same time. In this fashion, each member of the population had an equal and known chance to participate in the survey. Further, sending the survey to all the teachers at the same time reduced selection under-coverage and non-response biases (Gall et al., 2007; Fink, 2003). Upon the deactivation of the online survey, 248 DLIFLC FL teachers had voluntarily chosen to complete the survey instrument. The researcher did not select the participants from the larger population; sampling, as such, was not performed.

Materials/Instruments

The survey used in this study was A Survey of Educational Technology Practices (ETP) (Appendix B). The survey is not a new instrument; rather, it consisted of sections from the Perceptions of Computers and Technology (Hogarty et al., 2003) (PCT) and Mathews' (2008) questionnaire about teachers' beliefs' in student centeredness (BSC). The PCT sections measured the teachers' self-reported educational technology practices in terms of the frequency with which they (a) use particular types of software in class, (b)

direct students to use particular types of software for learning in class, and (c) employ various means of integrating computers in class. The BSC measured teacher beliefs' in student centeredness in terms of their student- and teacher-centered beliefs. Therefore, in addition to a part soliciting demographics and background information, the instrument consisted of 50 items divided into four sections: Types of software used by teachers to complete class related activities, types of software teachers direct students to use to complete class related activities, modes of integrating computers into the classroom, and teacher beliefs in student-and teacher-centered approaches.

The original PCT measures teachers' technology use in terms of integration; teacher preparation, confidence, and comfort with computer use; technical and general support, and attitudes toward computer use (Hogarty et al., 2003). For purposes of this dissertation, only three sections from the original PCT were used with the permission of two of the three designers of the survey (Appendix C). The sections measure the frequency with which teachers use particular types of software in class, the frequency with which they direct students to use particular types of software for learning in class, and the frequency with which they use various means of integrating computers in class. The PCT uses a Likert scale with five options for each question. Each question has a corresponding point value ranging from 1 to 5. The options provided to the participants are *not at all* (1), *once a month or less* (2), *once a week* (3), *several times a week* (4), and *every day* (5).

The BSC consists of 10 statements, describing student-and teacher-centered approaches, to which respondents express their degree of agreement. The BSC was used in this study with the permission of the designer (Appendix C), Mathews (2008) who

designed the BSC, using current research as a guide, in a study whose purpose was to compare and contrast the traditional teacher-centered and the student-centered approach of teaching a foreign language among secondary FL teachers. Mathews used the electronic survey to solicit responses to establish which of the two teaching methods, the teacher-centered or the student-centered approach, four foreign language teachers utilized in their classrooms. The BSC uses a Likert scale with five options for each question. Each question has a corresponding point value ranging from 1 to 5. The five options provided to the survey participants are strongly agree (5), agree (4), not sure, (3), disagree (2), and strongly disagree (1).

The first four statements describe characteristics of the student-centered approach whereas the remaining questions describe the teacher-centered approach (Mathews, 2008). Respectively, the first statement describes the instructor as a facilitator of learning rather than a presenter of information. Second, the focus of instruction is on options, rather than uniformity. Third, students take responsibility for their own learning and become conscious of, examine, and adjust their own thinking and learning processes. Finally, students work together to reach a common goal, willingly help each other, and share skills and ideas. The remaining statements focus on six distinct characteristics of the teacher-centered approach. First, thinking is principally the responsibility of the teacher and students merely memorize and recite information given by the teacher. Second, the teachers' use of norm references, multiple-choice items, and student rating of instruction at the end of course. Third, teacher transmitting knowledge, from the expert to the novice. Fourth, the learning experience is often competitive in nature, usually between students who resent others using their ideas. Fifth, students strive to complete requirements and

achieve certification within a discipline. Finally, there is no higher motivation to learn as when students feel they have a real stake in their own learning; the teacher is the instructor and decision maker.

After obtaining the proper permissions via email communication from the DLIFLC and the IRB, the online survey was available to teachers between September 26, 2009 and October 23, 2009 via email and web based communication at the DLIFLC. The teachers in the institute received an email asking for their participation in the online survey study. Additionally, the teachers received follow up/reminder emails. Eventually, upon deactivation of the online survey, 248 teachers throughout the institute had participated in the study.

Operational Definition of Variables

The study involved correlations between a predictor variable and three outcome variables. The predictor variable was teachers' beliefs in student-centeredness. The three outcome variables were teacher software use, student software use, and technology integration practices. The four variables are operationally defined in succeeding sections.

Predictor variable.

The predictor variable is operationally defined as the degree with which teachers believe in student-centeredness. Ten items that appear in section 4 of the Survey of Educational Technology Practices (Appendix B) were used to measure this variable. The ten items are 10 statements to which the respondents expressed their degree of agreement. The first four statements represented student-centered characteristics and thus measured teachers' student-centered educational beliefs. The remaining six statements (statement 5, 6, 7, 8, 9, and 10) which were reverse coded, represented characteristics of teacher-centered

approaches, and thus measured teacher-centered educational beliefs. Composite scores were calculated for this variable with a minimum of 10 and maximum of 50.

Outcome variables.

The first outcome variable is teacher software use. This variable is operationally defined as the frequency with which teachers use particular types of software in class. The variable was measured with 14 items in section 1 of the ETP. Respondents expressed how often they used each of 14 software types for class-related activities. The composite score for this variable totaled a minimum of 14 and maximum of 70 with the upper range suggesting frequent usage and the lower ends suggesting less frequent usage.

The second outcome variable is student software use. This variable is operationally defined as the frequency with which teachers direct students to use particular types of software for learning in class. The variable was measured in terms of how often respondents direct their students to use each of 14 software types, which appear in section 2 of the ETP, to complete in-class activities. The scores for this variable totaled a minimum of 14 and maximum of 70 with the upper range suggesting frequent usage and the lower ends suggesting less frequent usage of a particular software.

The third outcome variable is technology integration practices. This variable is operationally defined as the frequency with which teachers employ various means of integrating computers in class. Twelve items that appear in section 3 of the ETP were used to measure this variable. Respondents expressed how often they use computers in each of 12 teaching modes. The total score for this variable ranged between a minimum of 12 and maximum of 60. A score of 12 indicated that computers are never used in each

of these modes. A score of 60 indicated that computers are used on a daily basis in each of the 12 teaching modes.

Data Collection, Processing, and Analysis

In order to perform the study and collect the data, the first step was securing permission from the DLIFLC and obtaining the approval of the Institutional Review Board (IRB). After receipt of IRB approval and clearance of a successful dissertation proposal, the participants received an email via the institute's internal email system. The email contained the consent form as well as the link to the electronic survey that DLIFLC hosted in an internal server to accommodate security concerns and because it reduces response time (Wiersma, 2005). Participants received the consent form (Appendix A) in which the researcher indicated that participation is voluntary. Completion of the survey by a participant served as their acknowledgment and acceptance to participate in the study. The researcher downloaded participant responses daily and stored them in electronic forms on the researcher's home computer. After completion of data analysis, the researcher will delete the collected data from the hard drive and destroy it in accordance with IRB guidelines.

Data Analysis.

In order to answer the research questions, the following three hypotheses were tested.

H1₀: There is no significant positive correlation between postsecondary FL teachers' degree of belief in student-centeredness and the frequency with which they use particular types of software in class.

H2₀: There is no significant positive correlation between postsecondary FL teachers' degree of belief in student-centeredness and the frequency with which they direct students to use particular types of software for learning in class.

H3₀: There is no significant positive correlation between postsecondary FL teachers' degree of belief in student-centeredness and the frequency with which they employ various means of integrating computers in class.

The same steps were followed in testing the three null hypotheses. The first step was collecting responses to the electronic questionnaire as well as categorizing and coding the data. The second step was selecting the 0.05 level as the significance level. The third step was using the Statistical Package for the Social Sciences (SPSS), version 15, to ensure that the data met assumptions for correlational analysis. The fourth step was generating scatter graphs to assess the strength and direction of correlation between the predictor variable and each of the three outcome variables. Finally, because the variables' measurement was on ordinal scales, the fifth step was calculating the Spearman's rho to determine the direction and strength of correlation between the predictor variable and each of the three outcome variables.

Methodological Assumptions, Limitations, and Delimitations

There were three assumptions about this correlational study. First, the participants responded honestly to the survey questions. Second, teachers at DLIFLC have a basic understanding of the hardware and software and how to implement the technology into their classroom activities. Third, the instrument used in this study is a valid, well-established measure for the research outcomes in this study because it combines

instruments that were designed to gather the appropriate data needed for analysis. Finally, the internal validity was represented in the credibility of the structure of the study (Gall et al., 2007). Similarly, the external validity was concrete, allowing for the replication of the study in other settings.

Limitations.

Limitations refer to the restrictions affecting the study of which the researcher has no control (Rudestam & Newton, 2001). The study three limitations. First, the execution of the study was in a single educational establishment. A second limitation was the reliance on teachers self-report as the only instrument for data collection. Third, low response to the survey could have caused a potential bias effect. Individuals who responded may have been highly motivated teachers who already have high levels of efficacy or may be teachers' who already actively use a variety of technology in their classrooms.

The internal validity of any study can be threatened in different ways (Gall, Gall, & Borg, 2007; Onwuegbuzie, 2000; Rudestam & Newton, 2001). Of relevance to this study are threats such as using a design of low power, selection bias, or reliability of measures and procedures. When the research is based on a small sample size, it is more difficult to detect with certainty the real relationship between variables (Onwuegbuzie). Similarly, as different statistical tests differ in their sensitivity to identify differences among variables, there is always the possibility that a researcher misses the relationship between the variables (Gall et al.). Additionally, selection bias occurs when sample members are substantially different from the studied population. This could occur in cases where individuals who complete a survey or return a questionnaire differ, in some

significant way, from the individuals who did not complete the survey or return the questionnaire (Rudestam & Newton). Finally, reliability of measures and procedures could result from the unreliable operational definitions of research constructs.

Potential threats to external validity include population and ecological validity as well as specificity of variables (Onwuegbuzie, 2000). Population validity refers to the extent to which the findings from the sample of a study can be generalized to the larger population. The second threat to external validity is ecological validity, which represents the extent to which findings of a study are independent of the setting or the location where the study is conducted. Particularly, ecological validity refers to the extent to which the findings of a study can be generalized across settings, conditions, and contexts. A third threat to external validity is specificity of variables which refers to the fact that any given research study utilizes specific individuals within a certain period of time at a particular setting based on specific operational definitions of the variables, and using a specific instrument to measure these variables.

The researcher aimed to mitigate threats to internal and external validity by inviting all the population, the 1,200 DLIFLC teachers, to participate in the study. In such a fashion, the researcher sought a larger sample than that required by the power analysis. A larger sample would minimize, but not eliminate selection bias and enhance population validity. Additionally, in terms of defining the constructs, the researcher relied on current research to arrive at the research constructs. In order to minimize specificity of variables, the researcher utilized instruments that have been used in other educational settings with different populations. Finally, in order to increase the credibility and the possibility to generalize the findings to other postsecondary FL settings, the researcher utilized valid

and reliable instruments as well as provided description of the characteristics of the sample.

Delimitations.

Delimitations of a study are the intentional limitations placed on the research design. Placing limitations on a study help the researcher to gather data that will generate the results appropriate for the study (Rudestam & Newton, 2001). The study had two researcher-imposed limitations. The first limitation was narrowing the scope of the study to the teachers at the basic language programs in the Presidio of Monterey because of accessibility issues. Second, in accordance with the power analysis, the minimum proposed sample was 234. Instead of surveying the proposed sample, all 1,200 teachers received the survey in order to increase the size of the sample and to ensure representation of all the languages taught at DLIFLC.

Ethical Assurances

The methodology for the study included the involvement of human participants. Therefore, to assure the avoidance of any unnecessary risk or harm to the participants, the researcher first secured the approvals of the DLIFLC and the Institutional Review Board. All participants were above the age of 18, and their participation was voluntary. Further, the participants had the purgative to leave the study at any time without penalty. They read the attached consent form and, and their participation in the survey served as their consent. The privacy of the subjects was the highest priority at all times; the senior leadership of DLIFLC reviewed the study proposal and instrument to ensure commitment to the confidentiality of the participants. Finally, at no time during this study has anyone

other than the researcher had access to survey raw data. The overriding concern in the study was honoring the autonomy and dignity of all of the research subjects.

Summary

This chapter presented the research method and design alongside a description of the research procedures to include data collection and analysis. The variables for the study- teachers' beliefs in student centeredness and teachers' self-reported educational technology practices- were generated from theory and the results of previous research, a suggestion proposed by Gall, Gall, and Borg (2007). This study utilized a correlational design because it enabled the researcher to analyze the relationship between the three variables at the same time. Accordingly, the researcher was able to examine how these variables, individually or in combination, affected patterns of behavior. Furthermore, a correlational design allowed the researcher to indicate the strength and direction of linear relationship between certain variables without the need to manipulate or control those variables (Gall et al., 2007; Rudestam & Newton, 2007). Finally, the study utilized a survey approach because it is effective in describing the characteristics of a large population. Secondly, a survey made it feasible to deal with large samples, which might make the study's results statistically significant. Additionally, because the questions are standardized, the measurement is more accurate by imposing identical definitions upon the participants.

CHAPTER 4: FINDINGS

This chapter starts with an overview of the study and description of the sample and concludes with a summary of key points discussed in the chapter. The remaining sections detail the results of the study, evaluation of findings, and summary. First, the outcomes of statistical analyses, arranged by hypothesis, are presented without discussion. Second, the study findings are interpreted in light of the theoretical framework identified for this study and compared to findings of other studies.

This quantitative, correlational study had two purposes. The first purpose was to fill a gap in the available literature regarding the educational technology practices among postsecondary FL teachers. A second purpose for this study was to examine the relationship between teachers' beliefs in student-centeredness and teachers' educational technology practices. The following three research questions guided this study:

- Q1.* What is the relationship between postsecondary FL teachers' degree of belief in student-centeredness and the frequency with which they use particular types of software in class?
- Q2.* What is the relationship between postsecondary FL teachers' degree of belief in student-centeredness and the frequency with which they direct students to use particular types of software for learning in class?
- Q3.* What is the relationship between postsecondary FL teachers' degree of belief in student-centeredness and the frequency with which they employ various means of integrating computers in class?

In order to answer the research questions, three null hypotheses were tested. The following are the null hypotheses and their corresponding alternates:

H1₀: There is no significant positive correlation between postsecondary FL teachers' degree of belief in student-centeredness and the frequency with which they use particular types of software in class.

H1_a: There is significant positive correlation between postsecondary FL teachers' degree of belief in student-centeredness and the frequency with which they use particular types of software in class.

H2₀: There is no significant positive correlation between postsecondary FL teachers' degree of belief in student-centeredness and the frequency with which they direct students to use particular types of software for learning in class.

H2_a: There is significant positive correlation between postsecondary FL teachers' degree of belief in student-centeredness and the frequency with which they direct students to use particular types of software for learning in class.

H3₀: There is no significant positive correlation between postsecondary FL teachers' degree of belief in student-centeredness and the frequency with which they employ various means of integrating computers in class.

H3_a: There is significant positive correlation between postsecondary FL teachers' degree of belief in student-centeredness and the frequency with which they employ various means of integrating computers in class.

Data for the study came from the responses of 248 post secondary FL teachers working at DLIFLC to an online survey, Survey of Educational Technology Practices (ETP) (Appendix B). The survey combined sections from the Perceptions of Computers and Technology (Hogarty et al., 2003) (PCT) and Mathews' (2008) questionnaire about

teachers' beliefs' in student centeredness (BSC). The PCT sections measured the teachers' self-reported educational technology practices in terms of the frequency with which teachers use certain types of software for in-class activities, direct their students to use certain types of software to complete class-related activities, and use various means of integrating computers in class. The BSC measured teacher beliefs' in student centeredness, the predictor variable, by gauging their pedagogical beliefs in teacher-centered and student-centered approaches.

The entire faculty of 1,200 postsecondary FL teachers teaching 24 foreign languages at the DLIFLC received invitations to complete the ETP. The teachers had access to the survey between September 26, 2009 and October 29, 2009 via email and web based communication. Teachers in the institute received an email seeking their participation in the online survey study. Further, on two separate occasions all the teachers received follow up/reminder emails. Upon the deactivation of the survey, 248 teachers throughout the institute had participated in the study.

The sample of 248 respondents, of which 61% were males and 39% were females, represents an overall response rate of 21%. As evidenced in table 1, none of the respondents was younger than 30 and only 7% were over 60. The respondents represented varying educational credentials. Of the 248 participants, 35% held bachelor's degrees, 54% held master's degrees, and 11% held either a specialist or a doctoral degree. The respondents' educational fields were diverse. The highest percentage of respondents, 39%, held degrees in the Social Sciences. Another 23% held degrees in Education. The remaining participants held degrees in the Humanities, Life Sciences, and Physical Sciences at 10%, 13%, and 14% respectively. The participants represented a broad range

of teaching experiences with the largest percentage of the respondents, 36%, having between six and ten years of teaching experience. The largest percentage of respondents, 57%, reported that they had worked at DLIFLC between one and five years. A 100% of the participants reported that they have completed the Pre-service Instructor Certification Course (ICC). Of the 97 teachers that have worked at DLIFLC longer than 5 years, 75% have completed the Instructor Recertification Course (IRC).

Table 1

Sample Characteristics

	Frequency	Percentage
Age (Years)		
51-55	77	31.0
31-35	60	24.2
41-45	35	14.1
46-50	32	12.9
56-60	18	7.3
Over 60	18	7.3
36-40	8	3.2
Teaching experience (Years)		
6-10	89	35.9
16-20	52	21.0
11-15	44	17.7
1-5	35	14.1
21-25	16	6.5
More than 30	12	4.8
DLIFLC teaching experience (Years)		
1-5	142	57.3
6-10	69	27.8
less than a year	16	6.5
11-15	12	4.8
16-20	9	3.6
Computers Use (Years)		
1-5	144	58.1
6-10	88	35.5
16-20	16	6.5

The participants had varying experiences with using computers in the classroom. Of the 248 that completed the survey, 58% reported having used computers in the classroom between 1 and 5 years. Finally, the largest percentage of participation came from teachers of Arabic at 50% followed by Chinese at 10%. Teachers of Arabic included both those who teach Modern Standard Arabic and other dialects, such as the Iraqi dialect. Table 2 presents the frequency and percentage of the languages taught by the participants.

Table 2

Languages Taught by Respondents

Language	Frequency	Percentage
Arabic	125	50.4
Chinese	25	10.1
Korean	15	6.0
Spanish	12	4.8
German	11	4.4
Dari	4	1.6
French	7	2.8
Turkish	10	4.0
Hebrew	9	3.6
Kurdish	6	2.4
Persian Farsi	6	2.4
Indonesian	4	1.6
Russian	4	1.6
Hindi	3	1.2
Serbian	3	1.2
Tagalog	2	.8
Urdu	2	.8
Total	248	100

Results

The survey scales were created by summing the ETP items in section 4 to create the score for the predictor variable, belief in student-centeredness. Scores for the three outcome variables, teacher software use, student software use, and technology integration practices, were created by summing items in the remaining three sections. Because the data that was collected was at the ordinal level of measurement, non-parametric methods were used. The use of non-parametric methods was necessary here because the data has a ranking on an ordinal scale but no clear numerical interpretation (Norusis, 2006). A specific reason for utilizing the Spearman correlation in this study was that exact sampling distribution could be obtained without requiring knowledge of the joint probability distribution of the two variables. Another justification for the use of non-parametric methods is simplicity. Due to the reliance on fewer assumptions, non-parametric methods were more robust in that they were not affected by outliers or other small departures from model assumptions. The results of the statistical analyses, arranged by hypothesis, are presented in the succeeding sections.

Hypothesis 1.

The first research hypothesis was that there is no significant positive correlation between postsecondary FL teachers' degree of belief in student-centeredness and the frequency with which they use particular types of software in class. The first hypothesis was tested using bivariate analysis. The analysis was conducted to determine the strength and direction of correlation between teachers' degree of beliefs in student-centeredness and the frequency with which they use particular types of software in class. The results of the correlation analysis revealed that there is no statistically significant correlation

between the two variables. ($r_s = .043$, $p = .504$). In conclusion, there was no statistical evidence to reject the null hypothesis, and no support for the alternate hypothesis that teachers' beliefs in student centeredness are associated with the frequency with which teachers use software in class.

Hypothesis 2.

The second hypothesis was that there is no significant positive correlation between postsecondary FL teachers' degree of belief in student-centeredness and the frequency with which they direct students to use particular types of software for learning in class. The second hypothesis was tested using bivariate analysis. The analysis was conducted to determine the strength and direction of correlation between teachers' degree of belief in student-centeredness and the frequency with which they direct their students to use particular types of software in class. The results of the correlation analysis revealed that there is no statistically significant correlation between the two variables. ($r_s = .025$, $p = .691$). Accordingly, there was no statistical evidence to reject the null hypothesis, and no support for the alternate hypothesis that teachers' beliefs in student centeredness are associated with the frequency with which they direct their students to use particular types of software in class.

Hypothesis 3.

The third hypothesis was that there is no significant positive correlation between postsecondary FL teachers' degree of belief in student-centeredness and the frequency with which they employ various means of integrating computers in class. The third hypothesis was tested using bivariate analysis. The analysis was conducted to determine the strength and direction of correlation between teachers' degree of beliefs in student-

centeredness and the frequency with which they employ various means of integrating computers in class. The results of the correlation analysis revealed that there is no statistically significant correlation between the two variables. ($r_s = .122, p = .056$). Accordingly, there was no statistical evidence to reject the null hypothesis, and no support for the alternate hypothesis that teachers' beliefs in student centeredness are associated with the frequency with which they employ various means of integrating computers in class.

Conclusion regarding results.

In testing correlations between the beliefs of postsecondary FL teachers in student-centeredness and the frequency with which they (a) use particular types of software in class, (b) direct students to use particular types of software for learning in class, and (c) employ various means of integrating computers in class, no significant correlations existed. Accordingly, there was no statistical evidence to reject any of the three null hypotheses, and no support for the alternate hypotheses that teachers' beliefs in student centeredness are associated the frequency with which they (a) use particular types of software in class, (b) direct students to use particular types of software for learning in class, and (c) employ various means of integrating computers in class. In conclusion, there was no statistical evidence to argue that there is a relationship between teacher's beliefs in student-centeredness and their educational technology practices.

Evaluation of Findings

Based on the Perceptual Control Theory (PCT) Zhao and Cziko (2001) theorized that teachers might not adopt technology if the promoted use does not agree with their existing beliefs. According to Zhao and Cziko, in order for teachers to use technology,

they must believe that (a) technology can effectively help them achieve higher-level objectives, (b) technology use will not interfere with higher-level goals, and (c) they will possess adequate ability and have sufficient resources to use technology. Teachers' beliefs are typically instinctive assumptions about education related issues such as teaching, learning, curriculum, schooling, and knowledge (Levin & Wadmany, 2006). Further, Park and Ertmer (2007) extrapolated that teacher beliefs are internal constructs that guide teaching practices and enable teachers to interpret experiences. Finally, according to research documented by Levin and Wadmany, beliefs act as filters or intuitive screens that direct teachers in making instructional and curricular decisions, implementing innovations, adopting new teaching methods, or adapting to new classroom environments, processes, and goals.

The investigation in the current study was carried under the assumption that when teachers possess adequate ability and have sufficient resources to use technology, their beliefs in student-centeredness will encourage or discourage them to use technology to achieve higher-level objectives. This assumption relied on data that demonstrate that teacher beliefs influence their use of computers in the classroom (Ertmer, 2005; Levin & Wadmany, 2006) and that teachers' beliefs are compatible with their instruction behaviors and influence their expectations and practices as well as their students' achievement (Moseley & Utley, 2008; Scharlach, 2008).

Statistical analyses in the current study did not generate any evidence to argue that there is a relationship between teacher's beliefs in student-centeredness and their educational technology practices. This finding suggests that teachers' pedagogical beliefs do not necessarily have a strong impact on how they use the available computer

technology. The current finding points to a need to explore other factors that may have a stronger influence on how and why teachers use computer technology. The current finding calls into question the premise upon which current research approaches technology integration among teachers. Rather than assuming that teachers' beliefs drive their actions, it is plausible that other factors such as their knowledge of technology and educational material (Pierson, 2001) affect their use of technology.

Findings from the current study revealed that there is no statistically positive correlation between teachers' beliefs in student-centeredness and their educational technology practices, which supports findings reported by Judson (2006) and Chen (2008) but does not support results reported in studies by Kim and Rissel (2008) and Matzen and Edmunds (2007).

The current study resembles that of Chen (2008) in terms of focus but differs in terms of subjects, methods, and results. Chen investigated how pedagogical beliefs affect the technology integration of 12 Taiwanese high school teachers of different grades and subjects. Chen used qualitative methods to collect data from multiple data sources with particular reliance on interviews, documents that included syllabi, lesson plans, handouts, PowerPoint slides, and products created by students, and more than 2 months of classroom observation. The results of Chen's study revealed an inconsistency between the teachers' expressed beliefs and their practices. Chen reported that although all the participants reported high levels of agreement on constructivist concepts, their instruction remained teacher-centered and lecture-based, and their technology use was to support such instruction.

Judson's (2006) research revealed that there is no association between teachers' beliefs and their practices. However, Judson employed both a survey and classroom observations to arrive at these results. First, 32 K-12 teachers completed a survey that measured their beliefs about instruction. Second, Judson observed teachers and rated them with the Focus on Integrated Technology: Classroom Observation Measurement (FIT: COM) which measured the degree to which technology integrated lessons were aligned with constructivist principles. Upon conducting a correlation analysis, teaching practices, as measured by the FIT: COM did not significantly correlate to teachers' reported philosophy.

The current study shares a small similarity with a study conducted by Kim and Rissel (2008) in terms of the focus on postsecondary FL teachers. However, the current study relied on analysis of data collected from 248 postsecondary FL teachers whereas the sample in the study of Kim and Rissel consisted of three male teaching assistants of European-American descent who taught different types of second language classes at the postsecondary level. The results reported by the current study differ from those reported by Kim and Rissel. The results of the Kim and Rissel's study suggested that the beliefs of the instructors had the greatest impact on how they used computer technology while the current study did not reveal any significant correlation between teacher's beliefs in student-centeredness and their educational technology practices.

Matzen and Edmunds (2007) applied a mixed methodology evaluation of The Centers for Quality Teaching and Learning (QTL) and concluded that the way in which teachers use technology correlated with their instructional beliefs. The researchers concluded that teachers who had more constructivist beliefs were more likely to use

technology in more constructivist ways. Similarly, Hernandez-Ramos (2005) who surveyed 350 K-12 teachers in Santa Clara County, California suggested that constructivist beliefs were found to be positively related to more frequent use of technology by teachers, for both themselves and their students.

In conclusion, in the field of postsecondary FL education, teachers' pedagogical beliefs regarding student-centeredness do not necessarily have a strong impact on how they use the available computer technology. Teachers' educational technology practices could be affected by other factors such as the enabling factors of the technology or the nature of the teachers' knowledge and abilities to use the available technology.

Summary

This chapter included the findings of this correlational research study that examined the direction and strength of correlation between beliefs in student-centeredness and educational technology practices among postsecondary FL teachers. The study represented a partial investigation of postsecondary FL instruction, as the sample was limited to teachers at the DLIFLC. The findings of the study revealed that there are no statistically significant correlations between teachers' beliefs in student-centeredness and the frequency with which they (a) use particular types of software in class, (b) direct students to use particular types of software for learning in class, and (c) employ various means of integrating computers in class. The findings suggest that among postsecondary FL education, teachers' pedagogical beliefs do not necessarily have a strong impact on how they use the available computer technology. Teachers' educational technology practices could be affected by other factors such as the enabling factors of the

technology or the nature of the teachers' knowledge and abilities to use the available technology.

CHAPTER 5: IMPLICATIONS, RECOMMENDATIONS, AND CONCLUSIONS

Research has suggested that FL teachers in general (Zhao, 2005) and postsecondary FL teachers in particular (Arnold, 2007) have not maximized the available computer technology to maximize student-centered language instruction and learning. There is a lack of studies that attempt to specify the barriers that cause this underutilization among postsecondary FL teachers. Research from K-12 FL instruction and other disciplines within general education suggested that teachers' beliefs in student-centeredness could be monumental in how and how often teachers use computer technology for FL student-centered language instruction and learning. This study addressed the general problem of lack of studies that attempt to unravel reasons behind computer technology underutilization among postsecondary FL teachers. Specifically, this study addressed the need for a clear-cut expression of the correlation between beliefs and educational technology practices among postsecondary FL teachers. The purpose of this study was to fill a gap in the available literature and to examine the direction and strength of correlation between beliefs in student-centeredness and the educational technology practices among postsecondary FL teachers.

The research method for this study was quantitative; the research design was correlational; and an online survey was the technique used for collecting data. Upon deactivation of the survey, a total of 248 postsecondary FL teachers at the basic language programs in DLIFLC at the Presidio of Monterey responded to a Survey of Educational Technology Practices (ETP) (Appendix B) that combined sections from the Perceptions of Computers and Technology (Hogarty et al., 2003) (PCT) and Mathews' (2008) questionnaire about teachers' beliefs' in student centeredness (BSC). Though the

credibility and validity of the survey have been established, the nature of the instrument was a primary limiting factor of the study. The study had two other limitations that were the execution of the study in a single educational establishment and the low response rate.

This chapter began with a brief review of the problem statement, purpose, method, and limitations. The remainder of the chapter is organized into three sections: (a) implications, (b) recommendations, and (c) conclusion.

Implications

The general problem addressed in this quantitative, correlational dissertation is the lack of studies that attempt to identify reasons behind underutilization of technology among postsecondary FL teachers. The study specifically addressed the direction and strength of correlation between beliefs in student-centeredness and educational technology practices among postsecondary FL teachers, such as those at DLIFLC. Three research questions guided the study.

The first research question asked, what is the relationship between postsecondary FL teachers' degree of belief in student-centeredness and the frequency with which they use particular types of software in class? The null hypothesis tested was that there is no significant positive correlation between postsecondary FL teachers' degree of belief in student-centeredness and the frequency with which they use particular types of software in class. The results of the correlation analysis revealed that there was no statistical evidence to reject the null hypothesis, and no support for the alternate hypothesis that teachers' beliefs in student centeredness are associated with the frequency with which teachers use software in class. The implication here is that there is no rationale for expecting a cause-and-effect relationship between postsecondary FL teachers' beliefs in

student-centeredness and the frequency with which they use particular types of software in class.

The second research question asked what is the relationship between postsecondary FL teachers' degree of belief in student-centeredness and the frequency with which they direct students to use particular types of software for learning in class. The null hypothesis tested was that there is no significant positive correlation between postsecondary FL teachers' degree of belief in student-centeredness and the frequency with which they direct students to use particular types of software for learning in class. Bivariate analysis did not generate any statistical evidence to reject the null hypothesis, and no support for the alternate hypothesis that teachers' beliefs in student centeredness are associated with the frequency with which they direct their students to use particular types of software in class. This implies that teachers' decision to direct students to use a particular computer technology tool is not necessarily regulated by their belief in student-centeredness. Rather, within the framework of Zhao and Cziko (2001), it is possible that teachers do so because they see no reason to use it. Teachers may consider their teaching to be excellent and do not see how computer technology enhances student learning.

The third research question asked what is the relationship between postsecondary FL teachers' degree of belief in student-centeredness and the frequency with which they employ various means of integrating computers in class. The null hypothesis tested was that that there is no significant positive correlation between postsecondary FL teachers' degree of belief in student-centeredness and the frequency with which they employ various means of integrating computers in class. The bivariate analysis did not generate any statistical evidence to reject the null hypothesis, nor provide support for the alternate

hypothesis that teachers' beliefs in student centeredness are associated with the frequency with which they employ various means of integrating computers in class. One implication here is that many teachers possibly adopt technology without changing their pedagogy. A second implication is that the presence of technology does not necessarily mean that teachers are frequently using it to support student-centered learning. A possible explanation for both of these observations is that within the belief hierarchy, technology is at a lower level than pedagogical beliefs (Zhao & Cziko, 2001). Because lower-level goals are easier to vary, it is possible that teachers use technology but in a way that supports their existing pedagogy.

Previous studies suggested that teachers' beliefs in student-centeredness affect their educational technology practices. Agreement on this casual relationship among researchers is non-existent. The purpose of this study was not to establish definitive conclusions about the cause-and-effect relationship between beliefs and practices. Rather, the study served as the first step in determining how beliefs and practices correlate. Though the study revealed that there is no correlation between beliefs and practices, it was significant because it was the first to examine this relationship among postsecondary FL teachers. In the 1732 bibliographic entries from books and journal articles in English that focus on the theory of technology in the field of language education which Kilickaya (2009) compiled, none of the studies examined the relationship between beliefs and practices among FL teachers. The current study is also significant because it is among the few studies that used a large sample of teachers as well as a sample that included teachers of 17 different languages to focus on the educational technology practices of in-service FL teachers. Most previous research into FL teachers' technology integration focused on

a small group of teachers during or after a formal computer assisted language learning (CALL) teacher education program, or on a small number of FL teachers in K-12 settings (Egbert, 2005; Lam, 2000; Stracke, 2004; Wong & Benson, 2006). Zhao's (2005) review of 156 peer-reviewed articles suggested that researchers in FL education usually focus on French, Spanish, English, German, and Arabic languages. The study is also significant because it did not treat teachers' educational technology practices as a single, unitary construct (Bebell et al., 2004). Instead of focusing on whether teachers use computer technology in the classroom or not, the focus of the study was on the frequency of using computer technology applications and strategies. Finally, the results of the study suggest that though teacher beliefs should not be discounted, future training of postsecondary FL teachers should focus on knowledge. The findings of this study support earlier results reported by Chen (2008) and Judson (2006) and do not corroborate results reported by Kim and Rissel (2008), and Matzen and Edmunds (2007).

Limitations.

When drawing conclusions and making recommendations, it is imperative to note the limitations of the current study and how they might have affected the study as well as how they may affect the understanding of the results. Although the survey methodology made it easier to collect data from a large group, there were limitations associated with this type of research method. The first limitation is that only the teachers at DLIFLC received the survey. A second limitation is reliance on teachers self-report for data collection might have compromised the accuracy of teachers' beliefs and practices. It is possible that some participants attempted to portray themselves to be more student-centered than they actually were. Third, a potential bias effect exists, as individuals who

responded to the survey may have been highly motivated teachers who already actively use a variety of technology in their classroom. Finally, one cannot discount the possibility that some respondents may have hurried through the survey selecting answers erratically or choosing those answers that were extreme.

The nature of the sample could also potentially account for the lack of correlation between beliefs and practices because participation was not proportional. For example, only the teachers of 17 languages and not the total 24 languages available at the institute participated in the study. Further, participation from teachers in certain languages was low. For example, only two teachers of Tagalog and another two of Urdu participated in the study as opposed to 125 teachers of Arabic. It is possible that the educational curricula used to teach each of these languages affected how teachers use technology and accordingly could have affected their responses. Although teachers of 17 languages participated in the study, the sample is not likely to correctly represent the general population of postsecondary FL educators.

Recommendations

Based on the findings of the study, the following recommendations are presented to administrators in foreign language education as well as researchers. First, the role of beliefs in forming and influencing educational practices should be acknowledged. Though teachers' beliefs in student-centeredness are not associated with the three outcome variables, this finding cannot be generalized to other beliefs. Second, administrators should carefully consider the types of instructional software that they purchase and the types of training that they provide to teachers in order to aid effective use of the software.

Research on the topic would be enhanced by supplementing surveys with interviews and classroom observations and executing studies in several educational establishments to access a larger group of teachers. When surveys are used, it is advisable to provide the respondents with definitions of terms that appear in the instrument such as student-centered learning. Researchers are also encouraged to add a section for comments to allow the teachers to better describe their educational technology practices. Future research could focus on those teachers that utilize the computer technology for high-level uses (Barron et al., 2003) to understand the reasons that encourage them to utilize the computer technology in such a manner and to determine the factors that initiated and supported their use in such a way.

Conclusion

The current study suggested that though DLIFLC succeeded in minimizing the extrinsic barriers to technology integration, teachers are still not using technology in a way that enhances student-centered learning, which supports claims made earlier by other researchers in other education levels and fields (Arnold, 2007; Barron et al., 2003; Cummings, 2008; Erben & Sarieva, 2008; Kim & Rissel, 2008). The study also revealed that the availability and accessibility of computer technologies in the classroom do not guarantee that teachers are using more student-centered practices (Cuban, 2001). This study did not generate any evidence that would substantiate that teachers' beliefs are essential elements in transforming their teaching into more constructivist practice with technology (Bitner & Bitner, 2002; Ertmer, 2005) and that such beliefs are the final barrier facing technology integration (Ma et al., 2008).

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APPENDIXES

Appendix A:

Human Subject Consent Form for Behavioral Study

You are invited to take part in a research study conducted by Ra'ed Qasem of the Middle East II School at the Defense Language Institute Foreign Language Center (DLIFLC). Before you decide whether to participate in the study or not, you should read this form and ask questions if there is anything that you do not understand.

The purpose of the study is to explore the relationship between foreign language teachers' beliefs in student-centeredness and their educational technology practices. Student-centeredness refers to a pedagogical approach that aims to replace the traditional concept of education through transferred knowledge from the teacher, with a concept that focuses on student-centered learning. The study is being conducted to fulfill the graduation requirement of the Doctorate of Philosophy in Education in the Curriculum & Instruction Program at Northcentral University.

If you decide to take part in this study, you will be asked to complete a survey. The information requested in the survey covers how you use computers, how you ask your students to use computers, how you integrate computers in the classroom, and your beliefs in student- and teacher-centered approaches. None of the mentioned portions is considered experimental.

The information that you give in the study will be handled confidentially. The information that you give in the study will be anonymous. Your name will not be collected or linked to your answers. Participation in this survey will take approximately 30 minutes. Participation in this study will not involve physical or mental health risks beyond activities encountered in daily working life.

Although there will be no direct benefit to you for taking part in this study, the researcher may learn more about how teachers' beliefs in student centeredness and attitudes towards technology affect their classroom technology use. This data will be a valuable resource for the DLIFLC's administration and the Faculty Development Division in designing training programs for the institute's faculty.

The decision to take part in this study is voluntary. You do not have to participate. Even if you decide at first to take part, you are free to change your mind at any time and quit the study. Whatever you decide will in no way penalize you.

If you have any questions about this research, please contact Ra'ed Qasem at 242-5450 or at Raed.qasem@us.army.mil. If you have any questions regarding your rights as a research participant, please contact the DLIFLC Human Protections Administrator at (831) 393-1838 or the IRB Chair at (831) 393-1518.

Completing this survey means that you understand the information given to you in this form and that you voluntarily agree to participate in the research described above.

Appendix B:

Educational Technology Practices

Purpose: This survey is designed to gain a better understanding of the relationship between foreign language teacher's beliefs in student-centeredness and how they use technology in the classroom. Responses will be kept strictly confidential and individual responses will not be identified or reported. Your participation is voluntary. Your participation is greatly appreciated; it will greatly contribute to understanding the current status of technology integration in foreign language education.

Thank you for your time and interest.

Demographics:

Name of your school: _____.

Gender: Male _____ Female _____

Age: _____

Highest degree earned:

____ Bachelors ____ Masters

____ Doctorate

____ Other, please specify _____.

Field of study _____

What language(s) do you currently teach? _____

Total teaching experience in years: _____.

Total teaching experience at DLIFLC in years: _____

How many years have you been using computers in your classroom for instruction? ____.

Section 1

TYPES OF SOFTWARE USED TO COMPLETE CLASS RELATED ACTIVITIES

Directions: For each type of software, please circle your response to indicate how often you use the software to complete in-class activities.

1= not at all
2= once a month or less
3= once a week
4= several times a week
5= every day

Word processors (e.g., AppleWorks, MS Word, ClarisWorks)	1	2	3	4	5
Spreadsheets (e.g., Excel)	1	2	3	4	5
Databases (e.g., Access)	1	2	3	4	5
Desktop publishing programs (e.g., Microsoft Publisher)	1	2	3	4	5
Presentation software (e.g., PowerPoint)	1	2	3	4	5
Web publishing programs (e.g., FrontPage)	1	2	3	4	5
Graphics programs (e.g., Draw & paint programs)	1	2	3	4	5
Drill and practice	1	2	3	4	5
Games	1	2	3	4	5
Simulations	1	2	3	4	5
Tutorials	1	2	3	4	5
Integrated Learning Systems	1	2	3	4	5
Web browsers (e.g., Internet Explorer)	1	2	3	4	5
Programming / authoring tools (e.g., Java, Visual Basic)	1	2	3	4	5

Section 2

TYPES OF SOFTWARE USED TO COMPLETE CLASS RELATED ACTIVITIES

Directions: For each type of software, please circle your response to indicate how often you have your students use the software **to complete in-class activities**.

1= not at all
2= once a month or less
3= once a week
4= several times a week
5= every day

Word processors (e.g., AppleWorks, MS Word, ClarisWorks)	1	2	3	4	5	NA
Spreadsheets (e.g., Excel)	1	2	3	4	5	NA
Databases (e.g., Access)	1	2	3	4	5	NA
Desktop publishing programs (e.g., Microsoft Publisher)	1	2	3	4	5	NA
Presentation software (e.g., PowerPoint)	1	2	3	4	5	NA
Web publishing programs (e.g., FrontPage)	1	2	3	4	5	NA
Graphics programs (e.g., Draw & paint programs)	1	2	3	4	5	NA
Drill and practice	1	2	3	4	5	NA
Games	1	2	3	4	5	NA
Simulations	1	2	3	4	5	NA
Tutorials	1	2	3	4	5	NA
Integrated Learning Systems	1	2	3	4	5	NA
Web browsers (e.g., Internet Explorer)	1	2	3	4	5	NA
Programming / authoring tools (e.g., Java, Visual Basic)	1	2	3	4	5	NA

Section 3

INTEGRATION OF COMPUTERS INTO THE CLASSROOM

Directions: Listed below are teaching modes in which computers may be used. Indicate how often you use computers in each teaching mode.

1= not at all
2= once a month or less
3= once a week
4= several times a week
5= every day

Small group instruction	1	2	3	4	5	NA
Individual instruction	1	2	3	4	5	NA
Cooperative groups	1	2	3	4	5	NA
As a reward	1	2	3	4	5	NA
Independent learning	1	2	3	4	5	NA
To tutor	1	2	3	4	5	NA
To promote student centered learning	1	2	3	4	5	NA
As a research tool for students	1	2	3	4	5	NA
As a problem solving/decision making tool	1	2	3	4	5	NA
As a productivity tool (reports or other products)	1	2	3	4	5	NA
As a classroom presentation tool	1	2	3	4	5	NA
As a communication tool (e.g., email, blogs, wikis)	1	2	3	4	5	NA

Section 4

TEACHER BELIEFS IN STUDENT-AND TEACHER-CENTERED APPROACHES

Directions: Listed below are statements about the role of the teacher and students in the teaching-learning process. Indicate your level of agreement with these statements. If you feel an item does not apply then circle NA	1= strongly disagree 2= disagree 3= not sure 4= agree 5= strongly agree
I consider myself a facilitator of learning and treat students are treated as co-creators in the learning process.	1 2 3 4 5 NA
I consider myself more a resource person than simply a teacher	1 2 3 4 5 NA
In my classrooms, students usually make decisions about what they will learn and how	1 2 3 4 5 NA
When working in groups, students make decisions about group membership; who they will work with and how	1 2 3 4 5 NA
Students work to meet the objectives set by me, the teacher	1 2 3 4 5 NA
Students complete activities to achieve academic goals determined by me, the teacher	1 2 3 4 5 NA
Students respond to directions and step by step instruction from me, the teacher, as they progress through activities	1 2 3 4 5 NA
Students work in groups, I the teacher designate; I am in control of group membership	1 2 3 4 5 NA
I, the teacher, evaluate all student work	1 2 3 4 5 NA
Students are given extrinsic motivators like grades and rewards as a means of motivation the to complete work	1 2 3 4 5 NA

Appendix C:

Permissions to Use Surveys

Permissions to Use the PCT.

An email from Dr. Hogarty, Kristine:

Good morning Ra'ed,
Thank you for your interest in our work. We are happy to grant you permission to use/modify our survey for your research. Please let us know what you discover.

Good luck with your research endeavor!
Take care,
Kris

An email from Dr. Jeffrey D. Kromrey:

Good morning Ra'ed,
I'm pleased that you want to use our survey in your research. You certainly have my permission to do so.

Thanks for your interest in our work.
Sincerely,
Jeffrey D. Kromrey
Professor
Department of Educational Measurement and Research
University of South Florida
kromrey@tempest.coedu.usf.edu

Permission to use the BSC.

An email from Dr, Mathews, Liane.

Thank you for your request. I am not opposed to you using the survey I have designed for my PhD dissertation titled "Effectively preparing secondary foreign language students: A study on the effectiveness of the teacher-centered and the student-centered approach." I do ask that you give me credit as the author of the survey because the survey was a challenge to create. Your dissertation sounds very interesting and I would like to read it when completed. If there is anything else I can help you with, please feel free to contact me again.

Liane Mathews, Ph.D.
Stockbridge High School
Stockbridge, GA 30281